WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: LAST CROCKER SORTS RESALE* ***AGREEMENT NO**: 30-105960 - 30-107968*

AUCTION: December 18, 2024 starting at 10:00 a.m. **COUNTY: Jefferson**
Olympic Region Office, Forks, WA

SALE LOCATION: Sale located approximately 10 miiles north of Quilcene, WA

PRODUCTS SOLD AND SALE AREA: Contractor shall harvest and deliver all timber except trees painted with blue paint or bounded out by yellow"Leave Tree Area" tags, bounded by the followin: Timber Sale Boundary tags, the PT-O-3000 and PT-O-3500 roads in Unit 1; Timber sale meeting the specifications described below; on parts of Section 13 in Township 28 North, Range 2 West W.M., containing 142 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		
107958	01	DF HQ B 12" TO 19'	28	649	3570	5.5	$0.00		$0.00	$0.00
107959	02	DF Sawlog 5" to 11" dib	28	1268	8242	6.5	$0.00		$0.00	$0.00
105960	03	DF Sawlog 12" to 19" dib	28	2081	12486	6	$0.00		$0.00	$0.00
105961	04	DF Sawlog 20" +dib	28	289	1590	5.5	$0.00		$0.00	$0.00
107962	5	RC Camprun 5" + dib	28	848	5173	6.1	$0.00		$0.00	$0.00
107963	6	WW SL 5" TO 11" dib	28	172	1187	6.9	$0.00		$0.00	$0.00
107964	7	WW SL 12" + dib	28	135	932	6.9	$0.00		$0.00	$0.00
107965	8	Red Alder Sawlog 7" + dib	26	455	3185	7	$0.00		$0.00	$0.00
107966	9	Conifer Pulp 2" + dib	N/A	40	360	9	$0.00 FIXED		$0.00	$0.00
107967	10	Hardwood Pulp 2" + dib	N/A	169	1521	9	$0.00 FIXED		$0.00	$0.00
107968	11	DF Poles 35' +	N/A	50	290	5.8	$0.00		$0.00	$0.00
Totals:				**6156**	**38536**				**$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:** MBF Scale

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EXPIRATION DATE: **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 their bid deposit up to 10% of their total bid price. Complete bidding procedures and auction information may be obtained from the Olympic Region Office in Forks WA. Phone number (360)374-2800.

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 = $0.00 per MBF for sorts 01, 02, 03, 04, 5, 6, 7, 8 and 11 and $0.00 per Ton for sorts 9 and 10.

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 = $26.00 per MBF for sorts 01, 02, 03, 04, 5, 6, 7, 8, 9, 10 and 11.

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

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be scaled at State approved locations. The State reserves the right to determine where logs are authorized to be scaled and weighed.

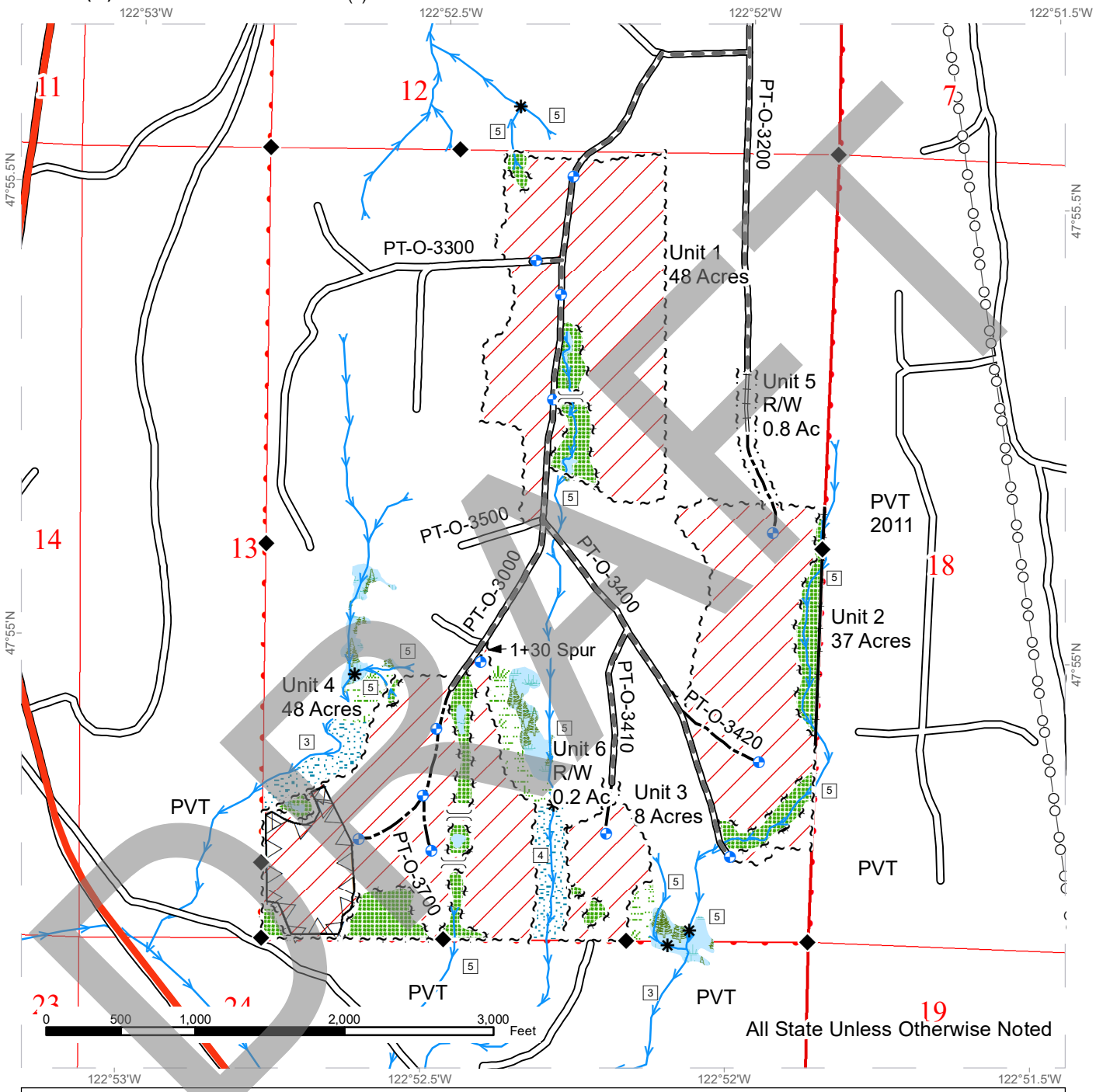
There are locked gates on the PT-O-3000. Contract Olympic Region Dispatch Center at 360-374-2800 to check out an AA1 key.

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 Jeremy Brown at the Olympic Region Office at (360)391-5976 or Steve Teitzel at the Product Sales and Leasing Division Office in Olympia at (360)902-1741.

TIMBER SALE MAP

SALE NAME: LAST CROCKER SORTS RESALE
AGREEMENT #: 30-107867
TOWNSHIP(S): T28R2W
TRUST(S): State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Jefferson
ELEVATION RGE: 280-680



Legend

- Sale Area
- Leave Tree Area
- Riparian Mgt Zone
- Forested Wetland
- Wetland Mgt Zone
- Timing Restriction
- Sale Boundary Tags
- Timber Type Change
- Leave Tree Tags
- Right of Way Tags
- Property Line
- Highway
- Existing Roads
- Required Pre-Haul Maintenance
- Required Reconstruction
- Optional Construction
- Power Lines
- streams
- Stream Type 3
- Stream Type 4
- Stream Type 5
- Stream Break
- Proposed Landing
- Designated Crossing
- Survey Monument

N

Prepared By: mben490
Accessed: 10/02/2024 14:23

Modification Date: mben490 8/30/2024

DRIVING MAP

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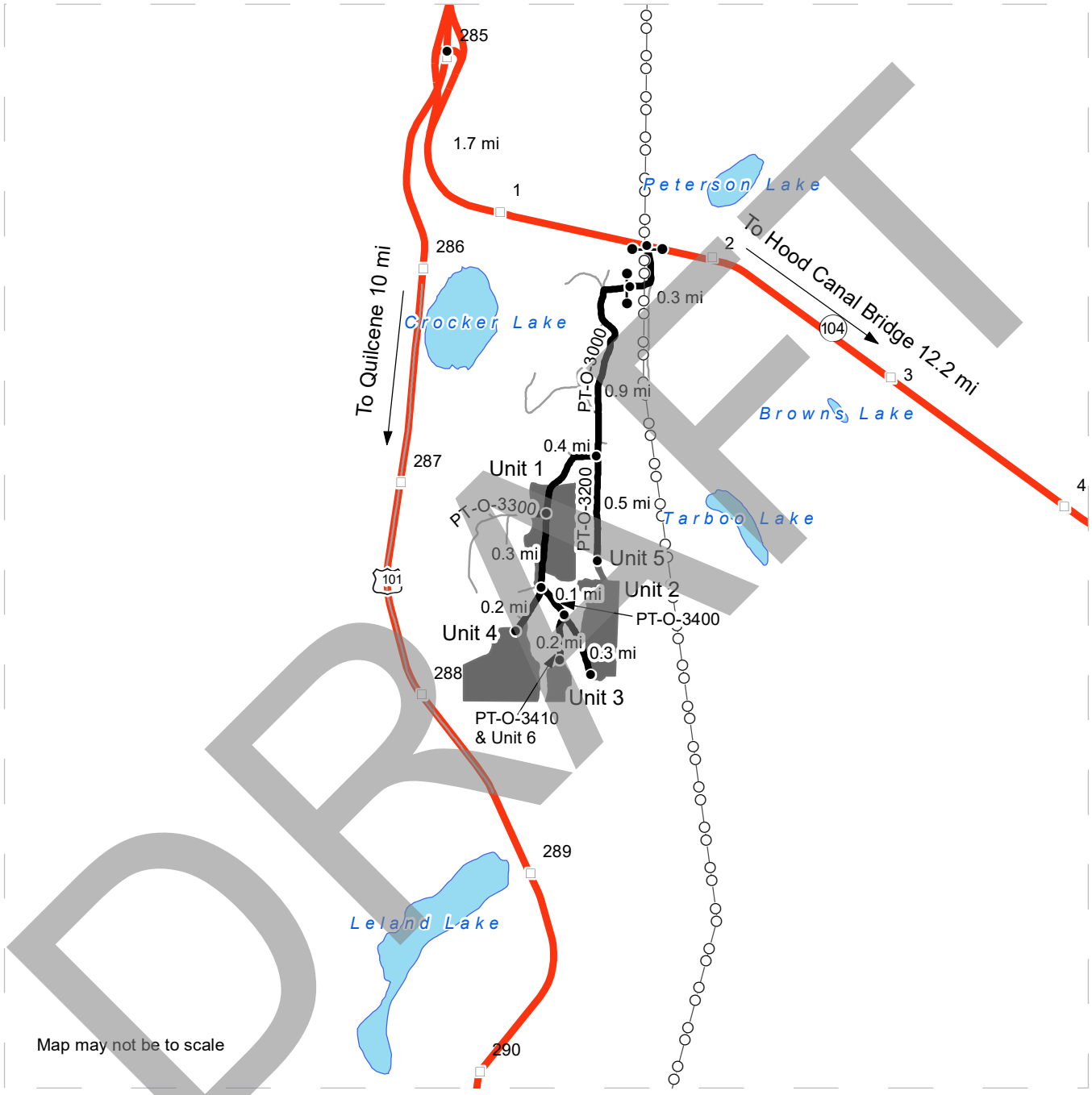


Timber Sale Unit
Highway
Haul Route
Other Road
Milepost Markers
Distance Indicator
Gate AA-1
Power Lines

DRIVING DIRECTIONS:

From Highway 104 just west of milepost 2 turn south on the PT-O-3000 under the powerlines. Go through the orange gate and follow the main road around for 0.3 mile to the yellow gate at the State property line. Travel 0.9 mile through this second gate to the PT-O-3200 junction. Stay straight for 0.5 mile to the end of the PT-O-3200 and walk in through Unit 5 tagged right-of-way to the top of Unit 2, or stay west on the PT-O-3000 for 0.4 mile to the middle of Unit 1. Continue on the PT-O-3000 for another 0.3 mile to the PT-O-3400 junction. Turn left and drive 0.4 mile to the end of the PT-O-3400 at the bottom of Unit 2, or only go 0.1 mile and park at the junction of the PT-O-3410 to walk in to Unit 6 tagged right-of-way and Unit 3. Turning right at the PT-O-3400 junction and driving 0.2 mile leads to Unit 4.

N

Prepared By: mben490
Accessed: 10/02/2024 14:23

Modification Date: mben490 8/30/2024

Timber Sale Cruise Report
Last Crocker Sorts Resale

Sale Name: LAST CROCKER SORTS RESALE

Sale Type: SORT

Region: OLYMPIC

District: STRAITS

Lead Cruiser: Kevin Peterson

Other Cruisers:

Cruise Narrative:
Location:
This sale is located just East of Discovery Bay off of the PT-0-3000. An AA1 key is needed to access the sale.

Cruise Design:
I used a 71.11/40 BAF for unit 1 & 2 and used a 62.50/40 BAF for unit 3 & 4. The 40 BAF was used to pick up RA, RC and MA.

Merch height was determined at 40% of the diameter at 16'. All butt logs were cruised in 40' lengths; except HQ DF, RC and RA.

Timber Quality:
This sale is mostly larger mature DF with 20"+ dbh and bole heights in the low 100's. About 20% of the DF is of high quality. There is also a good RA component in this sale. Some of the RA will make great 30-40' 2 and 3 saw logs. There is also WH, RC and MA scattered through the sale.

Common defects are sweep, spike knots and forked tops

Logging and Stand Conditions:
This sale is mostly flat with some gentle slopes. Most of the sale is pretty easy to move through, unit 1 has some brushy areas.

Timber Sale Notice Volume (MBF)

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	21.6	8.5		4,361	21	2,969	1,183	164	25
RA	14.3			592		128	168	259	37
WH	17.9			322		135	141	31	15
RC	19.6			139			128	11	
MA	20.7			34		28		3	4
ALL	19.3	8.5		5,447	21	3,259	1,619	467	81

Timber Sale Notice Weight (tons)

	Tons by Grade					
Sp	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	34,616	141	22,825	9,918	1,569	162

	Tons by Grade					
Sp	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
RA	5,400		1,180	1,439	2,495	285
WH	3,107		1,196	1,419	302	191
RC	1,322			1,233	89	
MA	309		239		36	35
ALL	44,753	141	25,441	14,009	4,490	672

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 (%)
267.1	3.2	142.8	2.0	38,414	3.8

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
LAST CROCKER U1A	B2C: VR, 2 BAF (71.11, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	6.5	7.7	4	2	0
LAST CROCKER U1B	B2C: VR, 2 BAF (71.11, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	41.7	48.4	26	13	0
LAST CROCKER U2	B2C: VR, 2 BAF (71.11, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	36.5	42.7	22	11	0
LAST CROCKER U3	B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	8.4	9.3	5	5	0
LAST CROCKER U4	B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	47.7	57.1	30	15	0
5 R/W	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	0.8		1	1	0
6 R/W	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	0.2		1	1	0
All		141.8	165.2	89	48	0

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	14.9	40	16,961	15,595	8.1	17,000.5	2,211.3
DF	LIVE	2 SAW	HQ-B	16.1	34	5,769	5,344	7.4	5,824.9	757.8

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	3 SAW	Domestic	9.1	39	8,634	8,340	3.4	9,917.8	1,182.7
DF	LIVE	4 SAW	Domestic	6.2	25	1,265	1,153	8.9	1,569.3	163.4
DF	LIVE	SPECIAL MILL	HQ-A	19.8	34	146	146	0.0	141.2	20.7
DF	LIVE	UTILITY	Pulp	5.1	23	173	173	0.0	161.9	24.6
MA	LIVE	2 SAW	Domestic	13.3	34	210	196	7.1	239.0	27.7
MA	LIVE	4 SAW	Domestic	7.2	28	21	21	0.0	35.5	3.0
MA	LIVE	UTILITY	Pulp	7.6	30	25	25	0.0	34.6	3.5
RA	LIVE	2 SAW	Domestic	13.0	35	1,030	900	12.7	1,180.4	127.6
RA	LIVE	3 SAW	Domestic	10.5	33	1,325	1,185	10.6	1,438.9	168.0
RA	LIVE	4 SAW	Domestic	6.7	30	1,959	1,827	6.8	2,495.2	259.0
RA	LIVE	CULL	Cull	5.1	14	18	0	100.0	0.0	0.0
RA	LIVE	UTILITY	Pulp	5.3	20	261	261	0.0	285.1	37.0
RC	LIVE	3 SAW	Domestic	10.2	36	1,059	901	15.0	1,233.3	127.7
RC	LIVE	4 SAW	Domestic	5.4	28	78	78	0.0	88.6	11.1
WH	LIVE	2 SAW	Domestic	14.2	40	993	952	4.1	1,196.0	135.0
WH	LIVE	3 SAW	Domestic	9.3	40	1,056	992	6.0	1,418.7	140.7
WH	LIVE	4 SAW	Domestic	5.3	26	217	217	0.0	301.7	30.8
WH	LIVE	UTILITY	Pulp	8.7	40	109	109	0.0	190.5	15.4

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 8	LIVE	Pulp	5.1	24	173	0.0	161.9	24.6
DF	5 - 8	LIVE	Domestic	6.8	31	3,790	4.7	5,195.0	537.5
DF	9 - 11	LIVE	Domestic	10.2	40	5,148	3.7	5,728.8	730.0
DF	12 - 14	LIVE	Domestic	13.4	40	7,767	6.7	8,880.9	1,101.3
DF	12 - 14	LIVE	HQ-B	14.0	34	1,263	7.4	1,519.4	179.2
DF	15 - 19	LIVE	Domestic	16.7	40	6,906	8.3	7,223.5	979.3
DF	15 - 19	LIVE	HQ-B	16.8	34	3,519	7.9	3,806.9	499.0
DF	15 - 19	LIVE	HQ-A	19.8	34	146	0.0	141.2	20.7
DF	20+	LIVE	Domestic	20.5	40	1,476	12.2	1,459.5	209.4
DF	20+	LIVE	HQ-B	22.3	34	562	3.5	498.6	79.7
MA	5 - 8	LIVE	Domestic	7.2	28	21	0.0	35.5	3.0
MA	5 - 8	LIVE	Pulp	7.6	30	25	0.0	34.6	3.5
MA	12 - 14	LIVE	Domestic	13.5	36	196	7.1	239.0	27.7
RA	5 - 8	LIVE	Cull	5.1	14	0	100.0	0.0	0.0
RA	5 - 8	LIVE	Pulp	5.2	20	233	0.0	251.6	33.1
RA	5 - 8	LIVE	Domestic	6.4	30	1,476	6.1	2,002.9	209.3

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
RA	9 - 11	LIVE	Pulp	9.2	20	27	0.0	33.5	3.9
RA	9 - 11	LIVE	Domestic	10.2	32	1,535	10.3	1,931.2	217.7
RA	12 - 14	LIVE	Domestic	13.1	35	900	12.7	1,180.4	127.6
RC	5 - 8	LIVE	Domestic	6.4	31	291	0.8	375.0	41.2
RC	9 - 11	LIVE	Domestic	10.2	36	242	14.9	345.4	34.3
RC	12 - 14	LIVE	Domestic	13.8	36	276	19.0	378.7	39.1
RC	15 - 19	LIVE	Domestic	17.6	36	171	22.3	222.8	24.2
WH	5 - 8	LIVE	Domestic	6.1	32	495	0.0	759.9	70.3
WH	5 - 8	LIVE	Pulp	8.7	40	109	0.0	190.5	15.4
WH	9 - 11	LIVE	Domestic	10.1	40	714	8.2	960.4	101.3
WH	12 - 14	LIVE	Domestic	13.8	40	514	7.4	691.8	72.8
WH	15 - 19	LIVE	Domestic	15.3	40	438	0.0	504.3	62.2

Cruise Unit Report
LAST CROCKER U1A

Unit Sale Notice Volume (MBF): LAST CROCKER U1A

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
DF	23.7			302	216	83	3
RA	15.8			45	13	12	20
MA	23.0			8	6		1
ALL	21.1			353	235	95	23

Unit Cruise Design: LAST CROCKER U1A

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (71.11, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	6.5	7.7	4	2	0

Unit Cruise Summary: LAST CROCKER U1A

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	6	13	3.3	0
RA	3	6	1.5	0
MA	1	1	0.3	0
ALL	10	20	5.0	0

Unit Cruise Statistics: LAST CROCKER U1A

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	231.1	63.4	31.7	200.7	11.3	4.6	46,380	64.4	32.1
RA	60.0	115.5	57.7	114.1	6.9	4.0	6,845	115.7	57.9
MA	10.0	200.0	100.0	114.7	0.0	0.0	1,147	200.0	100.0
ALL	301.1	21.3	10.6	180.6	26.5	8.4	54,372	34.0	13.6

Unit Summary: LAST CROCKER U1A

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	6	ALL	23.7	117	149	50,226	46,380	7.7	75.4	231.1	47.5	301.5
MA	LIVE	CUT	1	ALL	23.0	70	86	1,147	1,147	0.0	3.5	10.0	2.1	7.5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
RA	LIVE	CUT	3	ALL	15.8	68	84	6,845	6,845	0.0	44.1	60.0	15.1	44.5
ALL	LIVE	CUT	10	ALL	21.2	98	124	58,218	54,372	6.6	123.0	301.1	64.7	353.4
ALL	ALL	ALL	10	ALL	21.2	98	124	58,218	54,372	6.6	123.0	301.1	64.7	353.4

Cruise Unit Report
LAST CROCKER U1B

Unit Sale Notice Volume (MBF): LAST CROCKER U1B

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
DF	21.6			1,247	892	301	55	
RA	15.0			264	57	97	92	19
WH	17.3			182	73	91	18	
RC	17.7			45		38	8	
MA	20.0			27	21		2	4
ALL	18.5			1,764	1,042	527	174	22

Unit Cruise Design: LAST CROCKER U1B

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (71.11, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	41.7	48.4	26	13	0

Unit Cruise Summary: LAST CROCKER U1B

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	29	60	2.3	0
RA	23	39	1.5	0
WH	4	12	0.5	0
RC	6	8	0.3	0
MA	2	4	0.2	0
ALL	64	123	4.7	0

Unit Cruise Statistics: LAST CROCKER U1B

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	161.7	71.9	14.1	184.9	16.7	3.1	29,903	73.8	14.4
RA	62.4	98.0	19.2	101.3	16.9	3.5	6,322	99.4	19.5
WH	32.8	164.8	32.3	132.7	26.7	13.3	4,354	166.9	35.0
RC	12.3	200.7	39.4	88.4	10.0	4.1	1,088	201.0	39.6
MA	6.2	301.7	59.2	104.3	14.1	10.0	642	302.0	60.0
ALL	275.4	25.5	5.0	153.6	31.6	3.9	42,310	40.6	6.4

Unit Summary: LAST CROCKER U1B

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	29	ALL	21.6	103	131	32,261	29,903	7.3	63.5	161.7	34.8	1,247.0
MA	LIVE	CUT	2	ALL	20.0	70	86	692	642	7.3	2.8	6.2	1.4	26.8
RA	LIVE	CUT	23	ALL	15.0	62	76	6,956	6,322	9.1	50.8	62.4	16.1	263.6
RC	LIVE	CUT	6	ALL	17.7	73	92	1,285	1,088	15.3	7.2	12.3	2.9	45.4
WH	LIVE	CUT	4	ALL	17.3	78	98	4,572	4,354	4.8	20.1	32.8	7.9	181.6
ALL	LIVE	CUT	64	ALL	18.7	83	104	45,766	42,310	7.6	144.4	275.4	63.1	1,764.3
ALL	ALL	ALL	64	ALL	18.7	83	104	45,766	42,310	7.6	144.4	275.4	63.1	1,764.3

Cruise Unit Report
LAST CROCKER U2

Unit Sale Notice Volume (MBF): LAST CROCKER U2

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	23.9			1,205	21	874	258	51	
WH	18.6			140		62	50	13	15
RA	16.4			101		43	23	27	8
RC	20.9			81			80	1	
ALL	22.5			1,526	21	979	410	92	23

Unit Cruise Design: LAST CROCKER U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (71.11, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	36.5	42.7	22	11	0

Unit Cruise Summary: LAST CROCKER U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	31	60	2.7	0
WH	2	9	0.4	0
RA	6	16	0.7	0
RC	6	15	0.7	0
ALL	45	100	4.5	0

Unit Cruise Statistics: LAST CROCKER U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	193.9	65.2	13.9	170.2	14.2	2.6	33,004	66.7	14.1
WH	27.7	148.2	31.6	138.4	15.5	11.0	3,830	149.0	33.4
RA	29.1	148.1	31.6	94.9	8.8	3.6	2,761	148.4	31.8
RC	27.3	114.4	24.4	81.2	19.7	8.1	2,215	116.1	25.7
ALL	278.0	38.3	8.2	150.4	28.1	4.2	41,810	47.5	9.2

Unit Summary: LAST CROCKER U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	31	ALL	23.9	106	135	35,441	33,004	6.9	62.3	193.9	39.7	1,204.6
RA	LIVE	CUT	6	ALL	16.4	61	75	3,223	2,761	14.3	19.8	29.1	7.2	100.8
RC	LIVE	CUT	6	ALL	20.9	60	76	2,580	2,215	14.1	11.4	27.3	6.0	80.9
WH	LIVE	CUT	2	ALL	18.6	80	100	3,988	3,830	4.0	14.7	27.7	6.4	139.8
ALL	LIVE	CUT	45	ALL	21.7	89	113	45,232	41,810	7.6	108.2	278.0	59.2	1,526.1
ALL	ALL	ALL	45	ALL	21.7	89	113	45,232	41,810	7.6	108.2	278.0	59.2	1,526.1

Cruise Unit Report
LAST CROCKER U3

Unit Sale Notice Volume (MBF): LAST CROCKER U3

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
DF	18.0			280	170	92	10	8
RC	18.0			13		10	3	
RA	11.0			6			6	
ALL	17.6			299	170	102	18	8

Unit Cruise Design: LAST CROCKER U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	8.4	9.3	5	5	0

Unit Cruise Summary: LAST CROCKER U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	20	20	4.0	0
RC	2	2	0.4	0
RA	1	1	0.2	0
ALL	23	23	4.6	0

Unit Cruise Statistics: LAST CROCKER U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	250.0	30.6	13.7	133.3	19.7	4.4	33,322	36.4	14.4
RC	16.0	223.6	100.0	93.8	10.8	7.7	1,502	223.9	100.3
RA	8.0	223.6	100.0	95.5	0.0	0.0	764	223.6	100.0
ALL	274.0	16.9	7.5	129.9	21.5	4.5	35,587	27.4	8.8

Unit Summary: LAST CROCKER U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	20	ALL	18.0	75	95	35,149	33,322	5.2	141.5	250.0	58.9	279.9
RA	LIVE	CUT	1	ALL	11.0	60	73	764	764	0.0	12.1	8.0	2.4	6.4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
RC	LIVE	CUT	2	ALL	18.0	64	78	1,613	1,502	6.9	9.1	16.0	3.8	12.6
ALL	LIVE	CUT	23	ALL	17.6	73	92	37,526	35,587	5.2	162.7	274.0	65.1	298.9
ALL	ALL	ALL	23	ALL	17.6	73	92	37,526	35,587	5.2	162.7	274.0	65.1	298.9

Cruise Unit Report
LAST CROCKER U4

Unit Sale Notice Volume (MBF): LAST CROCKER U4

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
DF	19.7	8.5		1,315	816	439	43	17
RA	11.9			176	15	36	114	11
ALL	16.8	8.5		1,491	831	476	157	27

Unit Cruise Design: LAST CROCKER U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	47.7	57.1	30	15	0

Unit Cruise Summary: LAST CROCKER U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	47	98	3.3	2
RA	20	33	1.1	0
ALL	67	131	4.4	2

Unit Cruise Statistics: LAST CROCKER U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	204.2	57.4	10.5	135.0	16.4	2.4	27,559	59.7	10.7
RA	44.0	167.7	30.6	84.0	21.1	4.7	3,696	169.0	31.0
ALL	248.2	26.6	4.9	125.9	24.9	3.0	31,255	36.5	5.7

Unit Summary: LAST CROCKER U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	47	ALL	19.7	82	104	29,302	27,559	5.9	96.5	204.2	46.0	1,314.6
RA	LIVE	CUT	20	ALL	11.9	51	62	4,038	3,696	8.5	57.0	44.0	12.8	176.3
ALL	LIVE	CUT	67	ALL	17.2	71	89	33,340	31,255	6.3	153.5	248.2	58.8	1,490.8
ALL	ALL	ALL	67	ALL	17.2	71	89	33,340	31,255	6.3	153.5	248.2	58.8	1,490.8

Cruise Unit Report
5 R/W

Unit Sale Notice Volume (MBF): 5 R/W

				MBF Volume by Grade		
Sp	DBH	Rings/In	Age	All	3 Saw	4 Saw
DF	15.1			11	9	2
ALL	15.1			11	9	2

Unit Cruise Design: 5 R/W

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	0.8		1	1	0

Unit Cruise Summary: 5 R/W

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

Unit Cruise Statistics: 5 R/W

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	160.0	0.0	0.0	83.0	8.5	4.2	13,273	8.5	4.2
ALL	160.0	0.0	0.0	83.0	8.5	4.2	13,273	8.5	4.2

Unit Summary: 5 R/W

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	15.1	64	79	13,966	13,273	5.0	128.7	160.0	41.2	10.6
ALL	LIVE	CUT	4	ALL	15.1	64	79	13,966	13,273	5.0	128.7	160.0	41.2	10.6
ALL	ALL	ALL	4	ALL	15.1	64	79	13,966	13,273	5.0	128.7	160.0	41.2	10.6

Cruise Unit Report
6 R/W

Unit Sale Notice Volume (MBF): 6 R/W

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
DF	22.9			2	1	1	0
WH	10.0			1			1
ALL	14.7			3	1	1	1

Unit Cruise Design: 6 R/W

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	0.2		1	1	0

Unit Cruise Summary: 6 R/W

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	2	2	2.0	0
WH	1	1	1.0	0
ALL	3	3	3.0	0

Unit Cruise Statistics: 6 R/W

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	80.0	0.0	0.0	149.9	35.5	25.1	11,991	35.5	25.1
WH	40.0	0.0	0.0	67.8	0.0	0.0	2,714	0.0	0.0
ALL	120.0	0.0	0.0	122.5	49.4	28.5	14,705	49.4	28.5

Unit Summary: 6 R/W

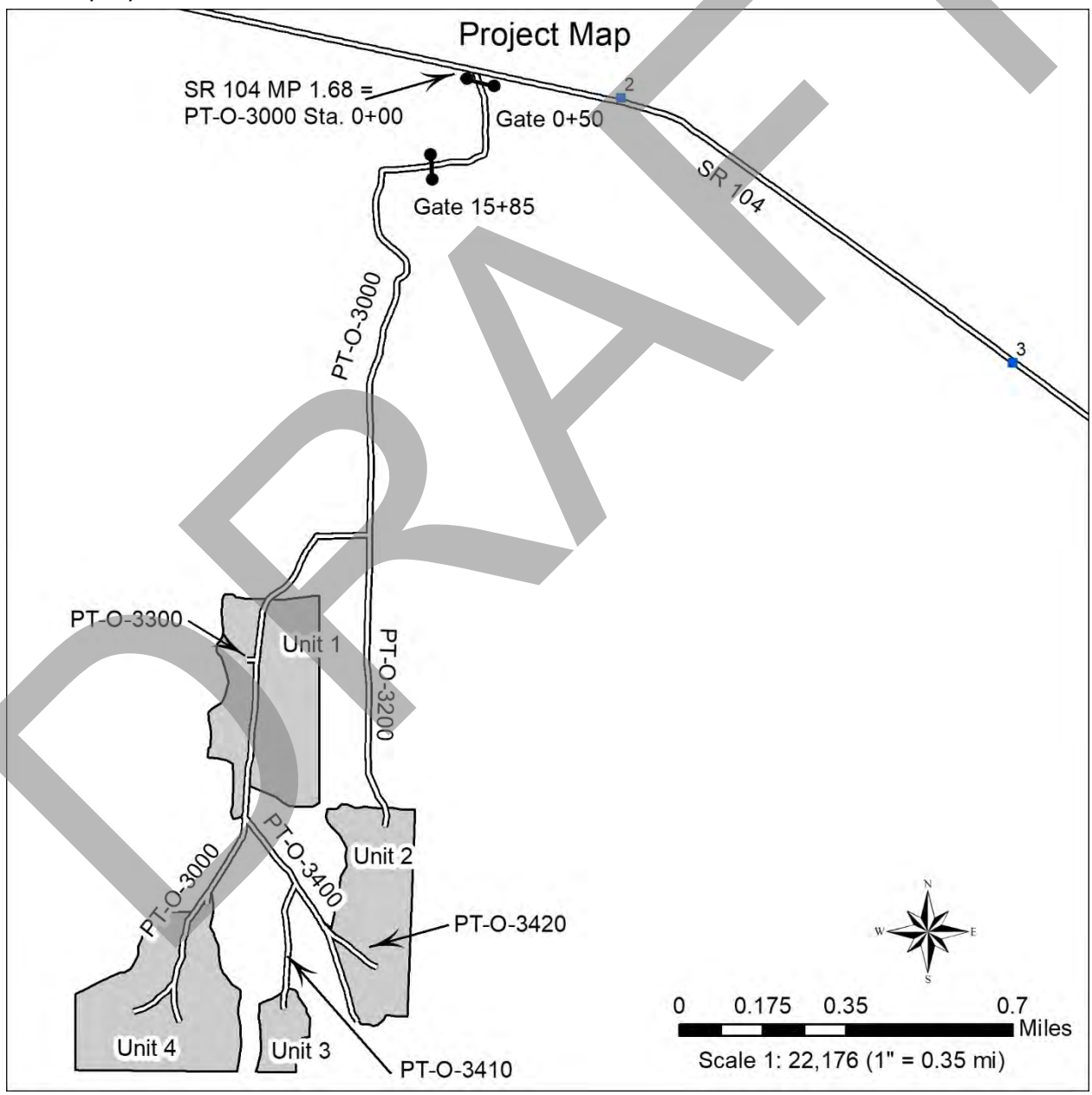
Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	22.9	87	110	12,640	11,991	5.1	28.0	80.0	16.7	2.4
WH	LIVE	CUT	1	ALL	10.0	45	54	2,714	2,714	0.0	73.3	40.0	12.6	0.5
ALL	LIVE	CUT	3	ALL	14.7	57	70	15,353	14,705	4.2	101.3	120.0	29.4	2.9
ALL	ALL	ALL	3	ALL	14.7	57	70	15,353	14,705	4.2	101.3	120.0	29.4	2.9

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

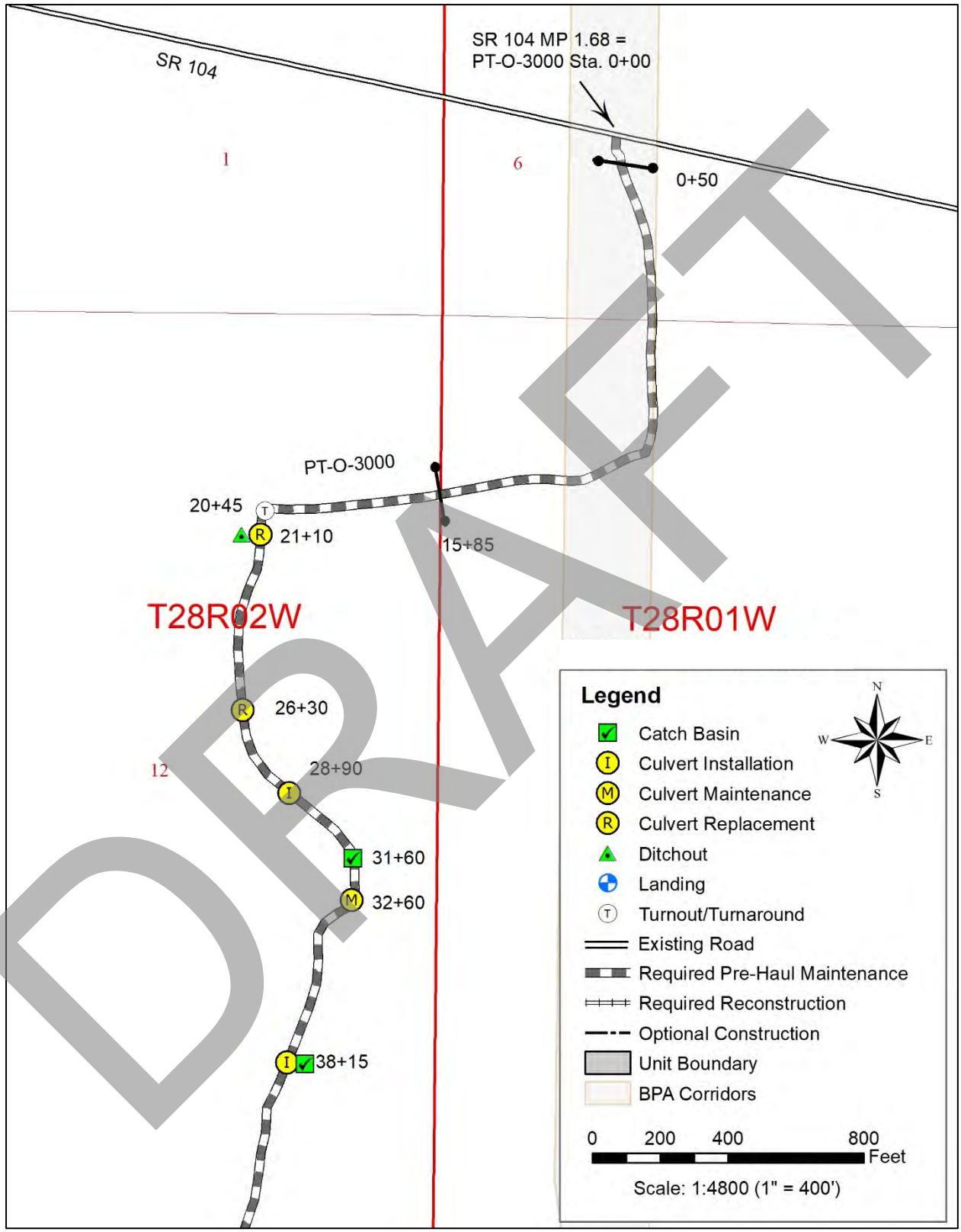
LAST CROCKER SORTS RESALE TIMBER SALE ROAD PLAN
JEFFERSON COUNTY
STRAITS DISTRICT
OLYMPIC REGION

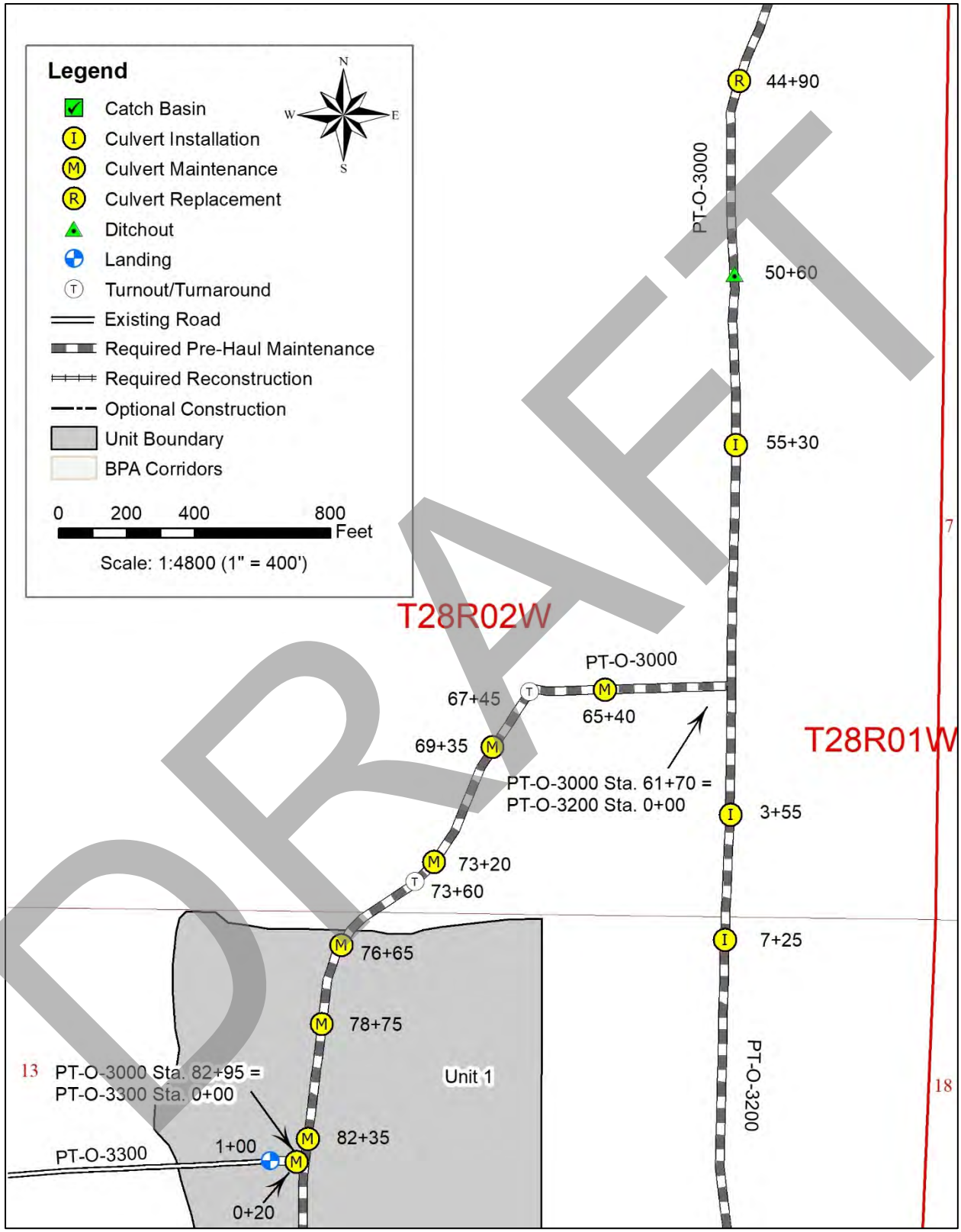
AGREEMENT NO.: 30-107867 DISTRICT ENGINEER: GREG ELLIS

DATE: 8/29/2024 DRAWN & COMPILED BY: EMMA HEIN



PT-O-3000 Work Map

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Catch Basin
Culvert Installation
Culvert Maintenance
Culvert Replacement
Ditchout
Landing
Turnout/Turnaround
Existing Road
Required Pre-Haul Maintenance
Required Reconstruction
Optional Construction
Unit Boundary
BPA Corridors
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Scale: 1:4800 (1" = 400')
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65+40
69+35
PT-O-3000 Sta. 61+70 =
PT-O-3200 Sta. 0+00
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76+65
78+75
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PT-O-3000 Sta. 82+95 =
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18
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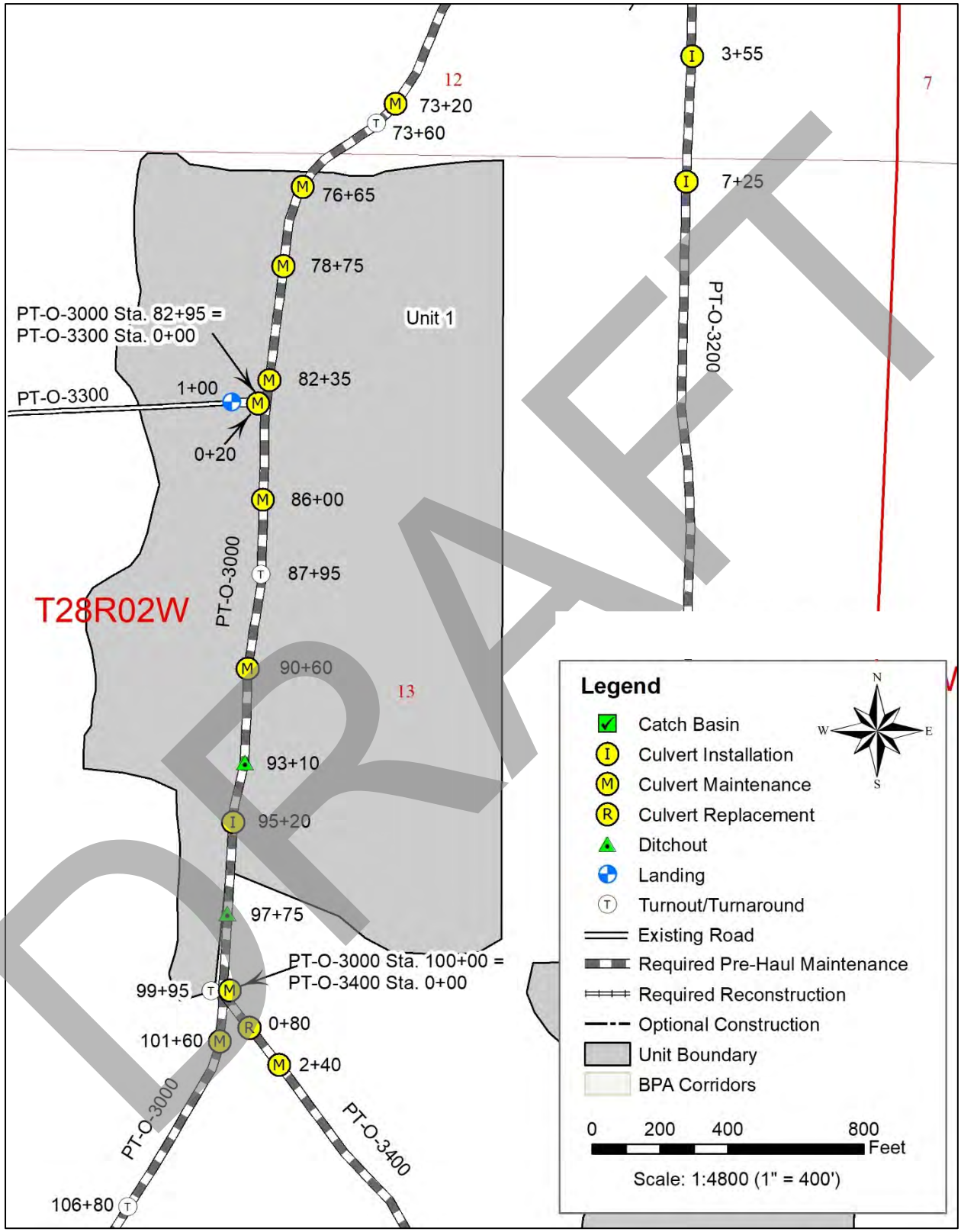
12
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PT-O-3000 Sta. 82+95 =
PT-O-3300 Sta. 0+00
PT-O-3000 Sta. 100+00 =
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Unit 1
T28R02W
Legend
Catch Basin
Culvert Installation
Culvert Maintenance
Culvert Replacement
Ditchout
Landing
Turnout/Turnaround
Existing Road
Required Pre-Haul Maintenance
Required Reconstruction
Optional Construction
Unit Boundary
BPA Corridors
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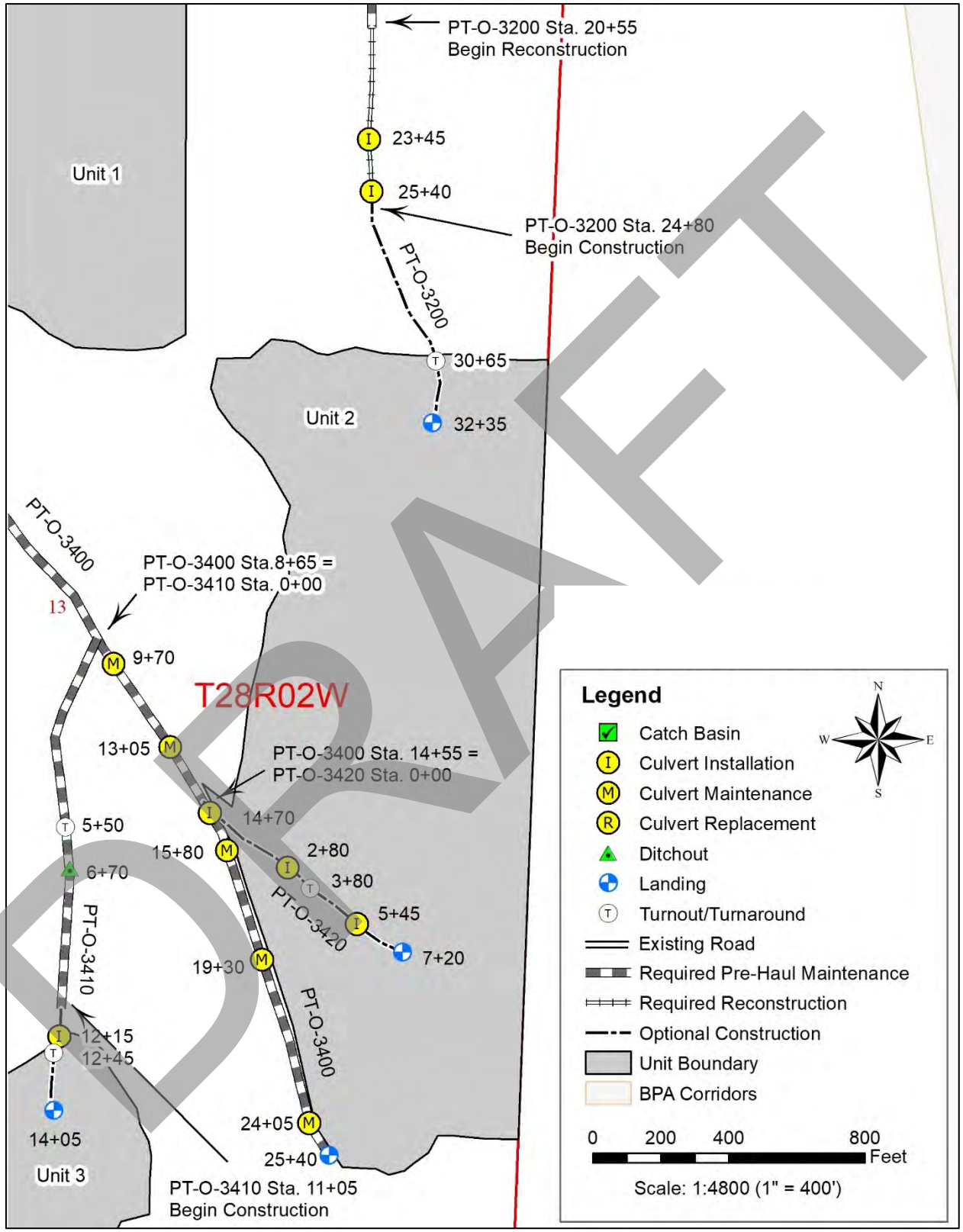
Feet
Scale: 1:4800 (1" = 400')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Begin Reconstruction
23+45
25+40
PT-O-3200 Sta. 24+80
Begin Construction
PT-O-3200
30+65
32+35
Unit 1
Unit 2
Unit 3
PT-O-3400
13
PT-O-3400 Sta.8+65 =
PT-O-3410 Sta. 0+00
9+70
T28R02W
13+05
PT-O-3400 Sta. 14+55 =
PT-O-3420 Sta. 0+00
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5+50
15+80
2+80
6+70
3+80
PT-O-3420
5+45
7+20
19+30
PT-O-3410
PT-O-3400
12+15
12+45
14+05
24+05
25+40
PT-O-3410 Sta. 11+05
Begin Construction
Legend
Catch Basin
Culvert Installation
Culvert Maintenance
Culvert Replacement
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Required Reconstruction
Optional Construction
Unit Boundary
BPA Corridors
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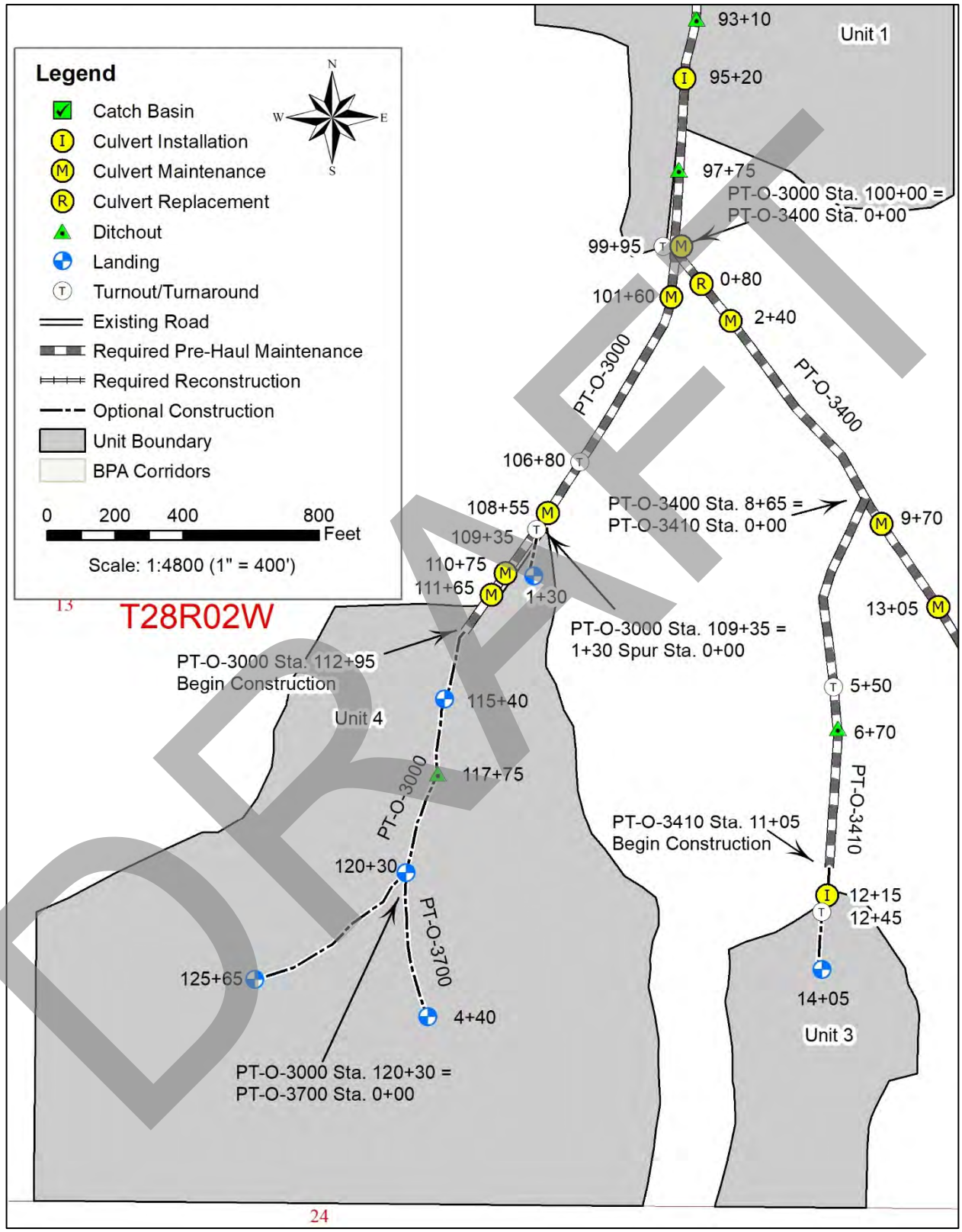
Legend
Catch Basin
Culvert Installation
Culvert Maintenance
Culvert Replacement
Ditchout
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Turnout/Turnaround
Existing Road
Required Pre-Haul Maintenance
Required Reconstruction
Optional Construction
Unit Boundary
BPA Corridors
0 200 400 800 Feet
Scale: 1:4800 (1" = 400')
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93+10
Unit 1
95+20
97+75
PT-O-3000 Sta. 100+00 =
PT-O-3400 Sta. 0+00
99+95
0+80
101+60
2+40
PT-O-3000
PT-O-3400
106+80
108+55
PT-O-3400 Sta. 8+65 =
PT-O-3410 Sta. 0+00
9+70
109+35
110+75
111+65
1+30
13+05
PT-O-3000 Sta. 109+35 =
1+30 Spur Sta. 0+00
PT-O-3000 Sta. 112+95
Begin Construction
115+40
Unit 4
5+50
6+70
117+75
PT-O-3000
PT-O-3410
PT-O-3410 Sta. 11+05
Begin Construction
120+30
12+15
12+45
PT-O-3700
125+65
14+05
Unit 3
4+40
PT-O-3000 Sta. 120+30 =
PT-O-3700 Sta. 0+00

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
PT-O-3000	0+00 – 112+95	Pre-Haul Maintenance
PT-O-3200	0+00 – 20+55	Pre-Haul Maintenance
PT-O-3200	20+55 – 24+80	Reconstruction
PT-O-3300	0+00 – 1+00	Pre-Haul Maintenance
PT-O-3400	0+00 – 25+40	Pre-Haul Maintenance
PT-O-3410	0+00 – 11+05	Pre-Haul Maintenance

0-3 OPTIONAL ROADS

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

Road	Stations	Type
PT-O-3000	112+95 – 125+65	Construction
1+30 Spur	0+00 – 1+30	Construction
PT-O-3200	24+80 – 32+35	Construction
PT-O-3410	11+05 – 14+05	Construction
PT-O-3420	0+00 – 7+20	Construction
PT-O-3700	0+00 – 4+40	Construction

0-4 CONSTRUCTION

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

Road	Stations	Requirements
PT-O-3000	112+95 – 125+65	See Below
1+30 Spur	0+00 – 1+30	
PT-O-3200	24+80 – 32+35	
PT-O-3410	11+05 – 14+05	
PT-O-3420	0+00 – 7+20	
PT-O-3700	0+00 – 4+40	
Total Stations	36.15 Stations	

Construction includes, but is not limited to: Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for

construction, compacting road surfaces, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, spreading grass seed and hay.

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
PT-O-3200	20+55 – 24+80	See Below
Total Stations	4.25 Stations	

Reconstruction includes, but is not limited to: Removal of all vegetative material with minimum loss of rock and dispose of in accordance with Clause 2-9 and Clause 3-23. Cleaning ditches and constructing ditches, constructing headwalls, cleaning culvert inlets and outlets in accordance with Clause 2-6 and Clause 2-7. Installing additional culverts and replacing culverts in accordance with the culvert list. Grading, shaping and compacting existing road surface, turnouts and turnaround in accordance with Clause 2-5, realigning road segments, spreading grass seed and hay, and the application of rock in accordance with the Rock List.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
PT-O-3000	0+00 – 112+95	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean/install culverts in accordance with Clause 2-6 and Culvert List. Install catch basins in accordance with Clause 2-7. Clean and maintain erosion control structures in accordance with Clause 2-8. Brush road in accordance with Clause 3-1, and construct ditchouts in accordance with Clause 4-29. Apply rock in accordance with Rock List.
PT-O-3200	0+00 – 20+55	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Install culverts in accordance with Clause 2-6 and Culvert List. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List.

PT-O-3300	0+00 – 1+00	Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List.
PT-O-3400	0+00 – 25+40	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean/install culverts in accordance with Clause 2-6 and Culvert List. Remove vegetative material in accordance with Clause 2-9 and brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List.
PT-O-3410	0+00 – 11+05	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Remove vegetative material in accordance with Clause 2-9. Brush road in accordance with Clause 3-1, construct ditchouts in accordance with Clause 4-29. Apply rock in accordance with Rock List.
Total Stations	170.95 Stations	

Pre-haul maintenance includes, but is not limited to: Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacements, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

0-7 POST-HAUL MAINTENANCE

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

0-13 STRUCTURES

Contractor shall provide and install all structures. Requirements for these structures are listed in Section 7 STRUCTURES.

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 must be submitted in writing to the Contract Administrator for consideration. Before work begins, Contractor shall obtain approval from the State for the submitted plan.

1-2 UNFORESEEN CONDITIONS

Quantities established in this road plan are minimum acceptable values. Additional quantities required by the state due to unforeseen conditions, or 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

1-6 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.

1-8 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.

1-12 SURVEY MONUMENTS

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

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

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

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

1-18 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.

SUBSECTION TIMING

1-20 COMPLETE BY DATE

Contractor shall complete reconstruction, construction and pre-haul road work before the start of timber haul.

1-21 HAUL APPROVAL

Contractor shall not use roads under this road plan without written approval from the Contract Administrator.

1-22 WORK NOTIFICATIONS

Contractor shall notify the Contract Administrator a minimum of 14 business days before work begins.

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

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

On the following road(s), are not allowed during the listed closure period(s) unless authorized in writing by the Contract Administrator.

Road	Stations	Activity	Closure Period
All	All	All	Weekends and State Recognized Holidays

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION or Contract Clause H-130 HAULING SCHEDULE, Contractor shall provide a maintenance plan to include further protection of state resources. Contractor shall obtain written approval from the Contract Administrator for the maintenance plan, and shall put preventative measures in place before operating during the closure period. Contractor is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060.1 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

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 6 inches on jaw run or pit run roads.
- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Wheel track rutting exceeds 4 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.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

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

If tracked equipment is used on asphalt surfaces, Contractor shall immediately cease all road construction and hauling operations. Contractor shall remove any dirt, rock, or other material tracked or spilled on the asphalt surface(s) and have surface(s) evaluated by the District Engineer or their designee for any damage caused by transporting equipment. 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

On the following road(s), snowplowing will be allowed after the execution of a SNOW PLOWING AGREEMENT, which is available from the Contact Administrator upon request. Contractor shall request a SNOW PLOWING AGREEMENT each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

SUBSECTION OTHER INFRASTRUCTURE

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

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.

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

Road Name
SR 104

1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES

Requirements for paved road approaches:
Contractor shall build up approaches to allow a smooth grade transition between DNR roads and SR 104. The top of DNR road surfacing must be kept level with the surface of SR 104 at all times. The surface of the DNR road approach must slope from the edge of SR 104 at the rate of 2%, unless otherwise directed by the Contract Administrator.

1-42 UTILITY ACCESS ROAD

The following road(s) intersect(s) existing utility access roads. Contractor shall conduct road work on the intersecting roads so that the utility access roads are accessible at all times.

Road	Stations
PT-O-3000	0+00 – 12+10

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. Contractor shall notify the Bonneville Power Administration before starting road work.

Road	Stations	Utility	Utility Contact
PT-O-3000	0+00 – 12+10	Overhead BPA Lines	**811**

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-050.1 CONTRACTOR ROAD MAINTENANCE AND REPAIR in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

Contractor may be required to perform maintenance on roads listed in Contract Clause C-060.1 DESIGNATED ROAD MAINTAINER as directed by the Contract Administrator. Contractor shall maintain roads 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

On the following road(s), Contractor shall use a grader to shape the existing surface.

Road	Stations	Requirements
PT-O-3000	0+00 – 112+95	Grade, shape, compact and remove shoulder vegetation as required by contract administrator
PT-O-3200	0+00 – 20+55	Grade, shape, compact and remove shoulder vegetation as required by contract administrator
PT-O-3400	0+00 – 25+40	Grade, shape, compact and remove shoulder vegetation as required by contract administrator
PT-O-3410	0+00 – 11+05	Grade, shape, compact and remove shoulder vegetation as required by contract administrator

2-6 CLEANING CULVERTS

On the following road(s), Contractor shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before start of timber haul.

Road	Stations
PT-O-3000	32+60, 65+40, 69+35, 73+20, 76+65, 78+75, 82+35, 86+00, 90+60, 99+95, 101+60, 108+55, 110+75, 111+65
PT-O-3300	0+20
PT-O-3400	2+40, 9+70, 13+05, 15+80, 19+30, 24+05

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following road(s), Contractor shall clean and/or construct ditches, headwalls, and catchbasins. Work must be completed before the start of timber haul and must be done in accordance with the Typical Section Sheet. Pulling ditch material across the road or mixing in with the road surface is not allowed. Ditchlines, headwalls, and catch basins shall not encroach into the existing road.

Road	Stations	Left and/or Right	Comments
PT-O-3000	31+60, 38+15	L	Catch Basin Install

2-8 MAINTAINING EROSION CONTROL STRUCTURES

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

Road	Stations	Comments
PT-O-3000	32+60	Roadside Silt fence L,R

2-9 REMOVING VEGETATIVE MATERIAL

On the following road(s), Contractor shall remove all vegetative material, dirt, mud and other debris on the existing road surface with a minimum loss of rock. Material must disposed of as specified in Clauses 4-35 through 4-38.

Road	Stations
PT-O-3400	0+00 – 25+40
PT-O-3410	0+00 – 11+05

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-1 BRUSHING

On the following road(s), Contractor shall cut vegetative material up to 5 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by 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.

Road	Stations
PT-O-3000	61+70 – 112+95
PT-O-3200	0+00 – 20+55
PT-O-3300	0+00 – 1+00
PT-O-3400	0+00 – 25+40
PT-O-3410	0+00 – 11+05

3-2 BRUSHING RESTRICTION

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing. Excavator buckets, log loaders and similar equipment may not be used for brushing unless otherwise approved in writing by the Contract Administrator.

3-3 BRUSH REMOVAL

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

SUBSECTION CLEARING

3-5 CLEARING

Contractor shall fall all vegetative material larger than 5 inches DBH or over 15 feet high between the marked right-of-way boundaries, or as approved by Contract Administrator. 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 40%.
- Against standing trees.

SUBSECTION GRUBBING

3-10 GRUBBING

Contractor shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET. Contractor shall also remove stumps with undercut roots outside the grubbing limits. Contractor shall remove stumps using a hydraulic mounted excavator unless authorized in writing by the Contract Administrator. Grubbing must be completed before starting excavation and embankment.

3-12 STUMP PLACEMENT

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

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

In the following waste area(s), Contractor is not required to remove stumps within waste areas if they are cut flush with the ground.

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

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

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, or wetland
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 45%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush 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

Contractor shall scatter organic debris outside of the grubbing limits in accordance with Clause 3-23 unless otherwise detailed in this road plan and as directed by the Contract Administrator**.**

SUBSECTION PILE

3-31 PILING

Contractor shall pile organic debris no closer than 20 feet from standing timber. Piles must be free of rock and soil.

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

Contractor shall use a track mounted hydraulic excavator for construction, reconstruction and maintenance work unless stated otherwise within this Road Plan or authorized in writing by the Contract Administrator.

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Contractor shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 16 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:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

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. Locations changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

4-22 TURNAROUNDS

Turnarounds must be no larger than 50 feet long and 30 feet wide. Locations are subject to written approval by the Contract Administrator.

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

Contractor shall not pull ditch material across the road or mix in with the road surface. Excavated material must be end hauled to the location specified in Clauses 4-36 through 4-38.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Contractor shall construct ditchouts as identified in the table below and as needed to fit as built conditions. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio. L or R denotes ditchout left or ditchout right.

Road	Stations	L or R
PT-O-3000	21+10, 50+60, 93+10, 97+75 (approx. 20')	R
PT-O-3000	117+75 (approx. 20')	L,R
PT-O-3410	6+70 (approx. 20')	L,R

SUBSECTION WASTE MATERIAL (DIRT)

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Contractor may sidecast waste material on side slopes up to 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, all waste material must be end hauled or pushed to the designated embankment sites.

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 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

SUBSECTION BORROW

4-47 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 12 inches in any dimension.

SUBSECTION SHAPING

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.

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.

SUBSECTION COMPACTION

4-60 FILL COMPACTION

Contractor shall compact all embankment and waste material in accordance with the COMPACTION LIST by routing equipment over the entire width of each lift. A plate compactor must be used for areas specifically requiring keyed embankment construction and for embankment segments too narrow to accommodate equipment.

4-61 SUBGRADE COMPACTION

Contractor shall compact constructed and reconstructed subgrades in accordance with the COMPACTION LIST by routing equipment over the entire width, except ditch. Contractor shall obtain written approval from the Contract Administrator for subgrade compaction before before placement of rock.

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 in accordance with the COMPACTION LIST by routing equipment over the entire width.

4-64 WASTE MATERIAL COMPACTION

All waste material shall be compacted by running equipment over it or bucket tamping.

4-65 CULVERT BACKILL COMPACTION

Culvert backfills shall be accomplished by using a jumping jack compactor, performing at least 2 passes per lift, in lifts not to exceed 8 inches.

4-66 COMPACTION BY METHOD

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

SUBSECTION SUBGRADE REINFORCEMENT

5-4 PUNCHEON RESTRICTED

At no time shall puncheon be used in the subgrade, unless approved by the Contract Administrator.

SUBSECTION CULVERTS

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 LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts must be new material and meet the specifications in Clauses 10-15 through 10-23.

5-12 UNUSED MATERIALS STATE PROPERTY

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

5-13 CONTINGENCY CULVERTS

The following culverts will be supplied by the Contractor and are available for installation as directed by the Contract Administrator. In the event that culverts are not used, culverts shall be stockpiled at Center Work Center.

Road	Size
On any portion of road used for timber or rock haul.	2 18" x 30' culvert 2 18" culvert band

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the TYPICAL CROSS DRAIN CULVERT INSTALLATION DETAIL SHEET, TYPICAL TYPE NS NP CULVERT INSTALLATION DETAIL SHEET, the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures"and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer's recommendations. Culverts over 15 inches diameter shall be banded using lengths of no less than 10 feet, and no more than one length less than 16 feet. Shorter section of banded culvert shall be installed at the inlet end.

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

Cross drain culverts must be installed with a depth of cover of not less than 18 inches of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover specified in the Engineer's design, TYPICAL TYPE NS NP DETAIL SHEET, or recommended by the culvert manufacturer for the type and size of the pipe, whichever is greater.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

Contractor shall construct catch basins to resist erosion. Minimum dimensions of catch basins are 1-2 feet wide, 1-2 feet deep and 2-4 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Contractor shall construct headwalls in accordance with the TYPICAL CROSS DRAIN CULVERT INSTALLATION DETAIL at all cross drain culverts that specify the placement of rock. Rock used for headwalls must consist of oversize or quarry spall material. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. No placement by end dumping or dropping of rock is allowed.

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

6-5 ROCK FROM COMMERCIAL SOURCE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the listed commercial source at the Contractor's expense. Rock sources are subject to written approval by the Contract Administrator before their use. Prior to approval, Contractor shall submit a passing sieve test performed by procedure described in WSDOT FOP for WAQTC T 27/11.

Approved Source	Location
Shine Quarry	T28N R01E Sec 30

SUBSECTION ROCK GRADATIONS

6-28 1 ¼-INCH MINUS CRUSHED ROCK

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

The portion of aggregate retained on the No. 4 sieve 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.

6-43 QUARRY SPALLS

% Passing 8” square sieve	100%
% Passing U.S. #40 sieve	5% maximum

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

SUBSECTION ROCK MEASUREMENT

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

Contractor shall obtain written approval from the Contract Administrator for subgrade drainage installation included grading and compaction 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 in accordance with the COMPACTION LIST by routing equipment over the entire width and in lifts not to exceed 6 inches.

6-72 ROCK APPLICATION AFTER HAULING

On the following road(s), upon completion of all hauling operations, Contractor shall apply rock in accordance with the quantities shown on the ROCK LIST.

Road	Stations	Rock Type	Amount
PT-O-3000	0+00 – 15+85	1 ¼" minus Crushed Rock	100 yd^3

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.

6-76 DRY WEATHER ROCK COMPACTION

On the following roads, The Contract Administrator may require the application of water to facilitate compaction of the rock surfacing. The method of water application is subject to approval by the Contract Administrator.

6-78 ROCK FOR SPOT PATCHING

Rock for spot patching shall be applied before any grading is done and before any rock lifts are applied. Once applied, spot patches shall be graded into the existing running surface.

SUBSECTION DUST ABATEMENT

6-80 WATERING FOR DUST ABATEMENT

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

SECTION 7 – STRUCTURES

SUBSECTION SIGNS

7-1 SIGN INSTALLATION

Contractor shall purchase, install, and maintain the following road signs. Signs must be installed a minimum of 7 days before work begins. Signs must comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices.

Road	Station	Sign
JCT PT-O-3000 with SR 104	0+00	1 Truck Crossing Sign facing outbound

SUBSECTION GATE CLOSURE

7-70 GATE CLOSURE

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

Road	Station
PT-O-3000	0+50, 15+85

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Contractor shall provide and evenly spread a 3-inch layer of straw or hay to all exposed soils at culvert installations within 100 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

SUBSECTION REVEGETATION

8-15 REVEGETATION

On the following road(s), Contractor shall spread grass seed and straw and/or hay mulch on all exposed soils including, but not limited to, stream culverts, waste areas, sidecast pullback areas, stream crossing removals, bridge installations, and other areas directed by the Contract Administrator. Revegetation of exposed soils shall be accomplished by manual dispersal of grass seed unless otherwise detailed in this Road Plan. Other methods of covering must be approved in writing by the Contract Administrator.

8-16 REVEGETATION SUPPLY

The Contractor shall provide the all seed, mulch, straw and/or hay, matting etc.

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

Contractor shall provide a protective cover over the revegetated area. The protective cover may consist of but not be limited to, such items as dispersed hay mulch 3" thick or jute matting. Seed must be covered before the first anticipated storm event.

8-19 ASSURANCE FOR SEEDED AREA

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

SUBSECTION SEED, FERTILIZER, AND MULCH

8-25 GRASS SEED

Contractor shall evenly spread the seed mixture listed below on all exposed soilat a rate of 60 pounds per acre of exposed soil. Grass seed must meet the following specifications:

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

Kind and Variety of Seed in Mixture	% by Weight	Minimum % germination
Perennial Rye	35-45	90
Red Fescue	30-40	90
Highland Bent	5-15	85
White Clover	10-20	90
Inert and Other Crop	0.5	

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

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
All	All	Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator.
PT-O-3000	0+00 – 15+85	Apply post haul rock per Clause 6-72.

SUBSECTION POST-HAUL LANDING 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

SUBSECTION CULVERTS

10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be aluminized (aluminum type 2 coated meeting AASHTO M-274).

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

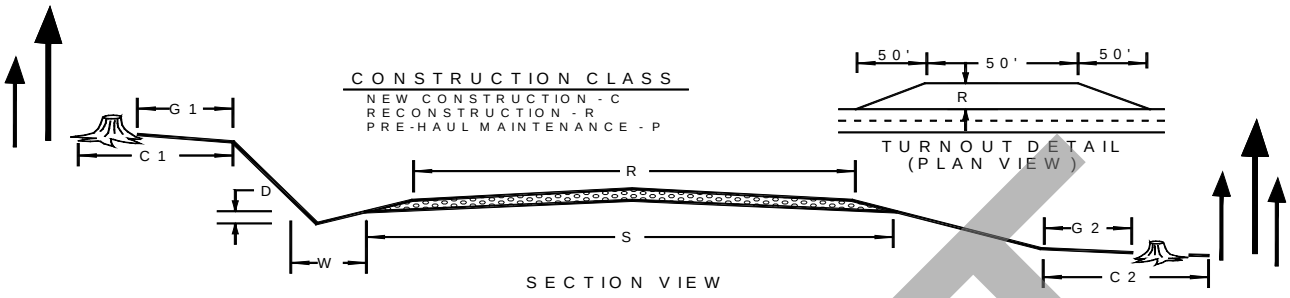
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

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.

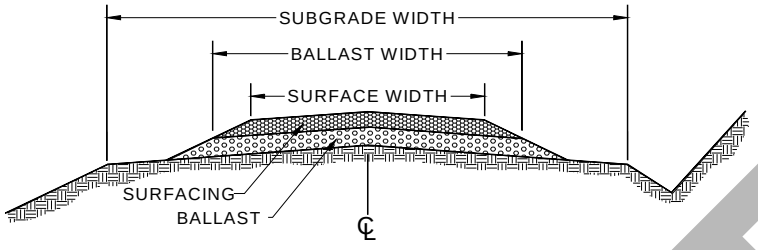
Diameter	Gauge	Corrugation
18"	16 (0.064")	$2\ ^{2}/_{3}$" X $^{1}/_{2}$"
24" to 48"	14 (0.079")	$2\ ^{2}/_{3}$" X $^{1}/_{2}$"
54" to 96"	12 (0.109")	5" X 1"

TYPICAL SECTION SHEET



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	TOLERANCE CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
PT-O-3000	0+00	112+95	P	A		12’	3”	3’	1’				
PT-O-3000	112+95	125+65	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
1+30 Spur	0+00	1+30	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PT-O-3200	0+00	20+55	P	C		12’	3”	3’	1’				
PT-O-3200	20+55	24+80	R	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PT-O-3200	24+80	32+35	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PT-O-3300	0+00	1+00	P	C		12’	3”	3’	1’				
PT-O-3400	0+00	25+40	P	C		12’	3”	3’	1’				
PT-O-3410	0+00	11+05	P	C		12’	3”	3’	1’				
PT-O-3410	11+05	14+05	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PT-O-3420	0+00	7+20	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PT-O-3700	0+00	4+40	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’

ROCK LIST SHEET

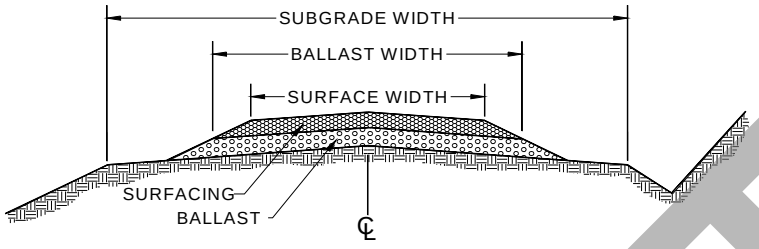


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Commercial quarry spalls, 2: Commercial 3" Minus, 3: Commercial 1 ¼" Minus

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd³)
PT-O-3000															
Spot Patch	0+00	15+85							3				100		
Post-Haul	0+00	15+85							3				100		
Lift	15+85	61+70							2	12	4	20	920		
Turnout	20+45			1				30							
Culvert Replace	21+10								2				20		
Culvert Replace	26+30								2				20		
Culvert Install	28+90								2				20		
Culvert Install	38+15								2				20		
Culvert Replace	44+90								2				20		
Culvert Install	55+30								2				20		
Lift	61+70	111+65							2	12	6	35	1750		
Turnout	67+45			1				30							
Turnout	73+60			1				30							
Turnout	87+95			1				30							
Culvert Install	95+20								2				20		
Turnaround	99+95			1				50							
Turnout	106+80			1				30							
Turnurnaround	109+35			1				50							
Totals:								1:250					2: 2810, 3: 200		

ROCK LIST SHEET CONTINUED



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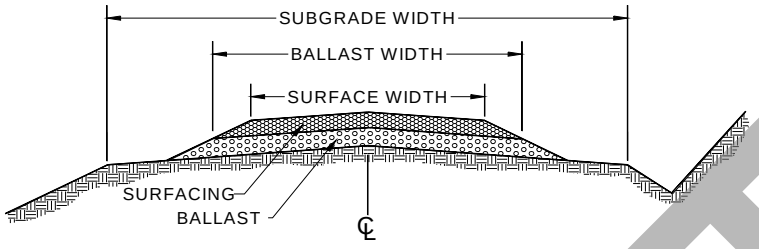
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd³)
PT-O-3000 Cont.															
Lift	111+65	112+95		1	17	8	45	60	2	12	4	20	30		
Lift	112+95	125+65	17	1	14	12	70	890	2	12	6	40	510		
Landing	115+40			1				50							
Landing	120+30			1				50							
Landing	125+65			1				100							
1+30 Spur															
Lift	0+00	1+30	17	1	14	12	70	90	2	12	6	40	50		
Landing	1+30			1				50							
PT-O-3200															
Culvert Install	3+55								2				20		
Culvert Install	7+25								2				20		
Lift	20+55	24+80	17	1	14	12	70	300	2	12	6	40	170		
Culvert Install	23+45								2				20		
Lift	24+80	32+35	17	1	14	12	70	530	2	12	6	40	300		
Culvert Install	25+40								2				20		
Turnout	30+65			1				30							
Landing	32+35			1				100							
PT-O-3300															
Landing	1+00			1				50							
Totals:								1: 2300					2: 1140		

ROCK LIST SHEET CONTINUED



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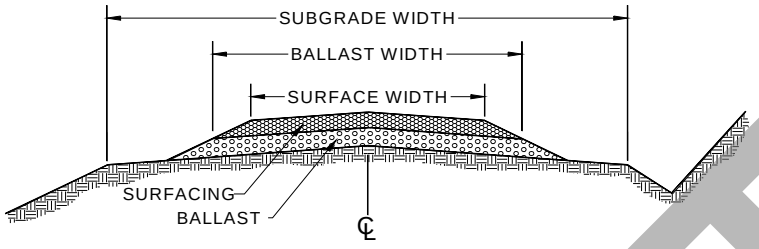
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd³)
PT-O-3400															
Lift	0+00	14+55							2	12	4	20	290		
Culvert Replace	0+80								2				20		
Culvert Install	14+70								2				20		
Landing	25+40			1				50							
PT-O-3410															
Lift	0+00	5+00							2	12	4	20	100		
Lift	5+00	7+00		1	14	8	45	90	2	12	4	20	40		
Turnout	5+50			1				30							
Lift	7+00	11+05							2	12	3	15	60		
Lift	11+05	14+05	17	1	14	12	70	210	2	12	6	40	120		
Culvert Install	12+15								2				20		
Turnout	12+45			1				30							
Landing	14+05			1				50							
PT-O-3420															
Lift	0+00	7+20	17	1	14	12	70	500	2	12	6	40	290		
Culvert Install	2+80								2				20		
Turnout	3+80			1				30							
Culvert Install	5+45								2				20		
Landing	7+20			1				50							
Totals:								1: 1040					2: 1000		

ROCK LIST SHEET CONTINUED



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6. Rock sources= 1: Commercial quarry spalls, 2: Commercial 3" Minus, 3: Commercial 1 ¼" Minus

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd³)
PT-O-3700															
Lift	0+00	4+40	17	1	14	12	70	310	2	12	6	40	180		
Landing	4+40			1				50							
Totals:								1: 360					2: 180		
Grand Totals:								1: 3950					2: 5130, 3: 200		

CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	DOWNSPOUT LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP – OUTLET (cy)	BACKFILL MATERIAL	NOTES
PT-O-3000	21+10	18	30					CR	Culvert Replacement
PT-O-3000	26+30	18	30					CR	Culvert Replacement
PT-O-3000	28+90	18	30					CR	Culvert Install
PT-O-3000	32+60	18							Clean Inlet and Outlet
PT-O-3000	38+15	18	30					CR	Culvert Install
PT-O-3000	44+90	18	30					CR	Culvert Replacement
PT-O-3000	55+30	18	30					CR	Culvert Install
PT-O-3000	65+40	18							Clean Inlet and Outlet
PT-O-3000	69+35	18							Clean Inlet and Outlet
PT-O-3000	73+20	18							Clean Inlet and Outlet
PT-O-3000	76+65	18							Clean Inlet and Outlet
PT-O-3000	78+75	18							Clean Inlet and Outlet
PT-O-3000	82+35	18							Clean Inlet and Outlet
PT-O-3000	86+00	18							Clean Inlet and Outlet
PT-O-3000	90+60	18							Clean Inlet and Outlet
PT-O-3000	95+20	18	30					CR	Culvert Install
PT-O-3000	99+95	18							Clean Inlet and Outlet
PT-O-3000	101+60	18							Clean Inlet and Outlet
PT-O-3000	108+55	18							Clean Inlet and Outlet
PT-O-3000	110+75	18							Clean Inlet and Outlet
PT-O-3000	111+65	18							Clean Inlet and Outlet
PT-O-3200	3+55	18	30					CR	Culvert Install
PT-O-3200	7+25	18	30					CR	Culvert Install
PT-O-3200	23+45	18	30					CR	Culvert Install
PT-O-3200	25+40	18	30					CR	Culvert Install
PT-O-3300	0+20	18							Clean Inlet and Outlet
PT-O-3400*	0+80	24	30					CR	Culvert Replacement
PT-O-3400	2+40	18							Clean Inlet and Outlet
PT-O-3400	9+70	18							Clean Inlet and Outlet
PT-O-3400	13+05	18							Clean Inlet and Outlet
PT-O-3400	14+70	18	50					CR	Culvert Install

CULVERT LIST Continued

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	DOWNSPOUT LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP – OUTLET (cy)	BACKFILL MATERIAL	NOTES
PT-O-3400	15+80	18							Clean Inlet and Outlet
PT-O-3400	19+30	18							Clean Inlet and Outlet
PT-O-3400	24+05	18							Clean Inlet and Outlet
PT-O-3410	12+15	18	30					CR	Culvert Install
PT-O-3420	2+80	18	30					CR	Culvert Install
PT-O-3420	5+45	18	30					CR	Culvert Install
Contingency Culvert		18	30					NT	See Clause 5-13
Contingency Culvert		18	30					NT	See Clause 5-13

All rip rap shall be Oversize unless specified in the Rock List, or in the field.
All backfill shall be native material (NT) unless specified otherwise. CR= 3”minus Crushed Rock, PR= Pit Run Rock * Indicates Live Stream Culvert

COMPACTION LIST

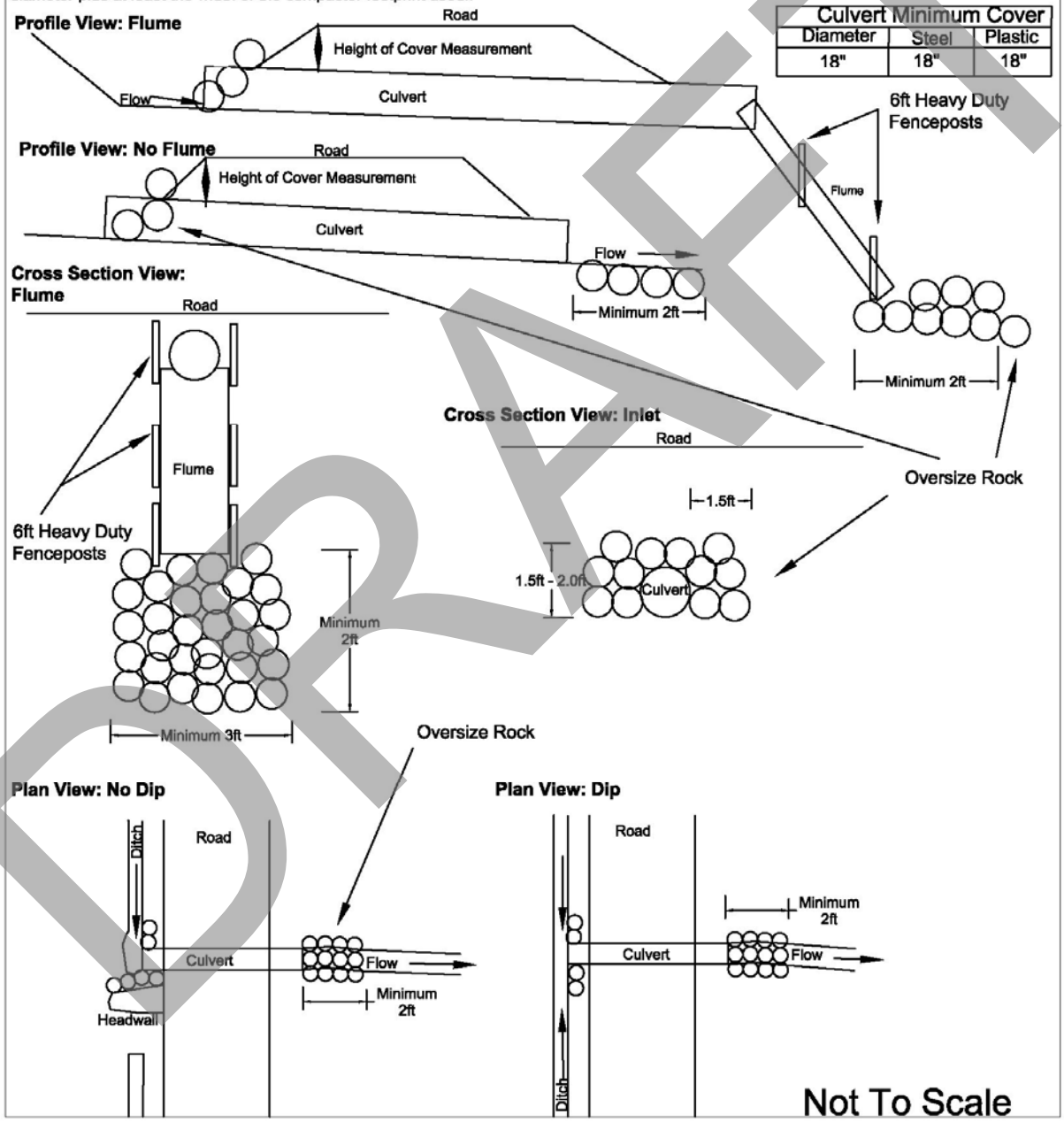
Alternate forms/methods to using vibratory smooth drum compactor to compact the road classes listed in the table below shall be approved per District Engineer.

Road	Stations	Type	Max Depth Per Lift (inches)	Equipment Type	Minimum Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
Pre-haul	All	Culvert Backfill	8”	Jumping Jack		3	
Pre-haul	All	Rock Lifts	6”	Vibratory Smooth Drum	6,000	3	3
Pre-haul	All	Pre-haul Surface		Vibratory Smooth Drum	6,000	3	3
Construction	All	Subgrade (Except Puncheon)	6”	Vibratory Smooth Drum	6,000	2	3
Construction	All	Culvert Backfill	8”	Jumping Jack		3	
Construction	All	Rock Placement	6”	Vibratory Smooth Drum	6,000	2	3
Reconstruction	All	Subgrade (Except Puncheon)	6”	Vibratory Smooth Drum	6,000	2	3
Reconstruction	All	Culvert Backfill	8”	Jumping Jack		3	
Reconstruction	All	Rock Placement	6”	Vibratory Smooth Drum	6,000	2	3
Post-haul Maintenance	All	Rock Placement	6”	Vibratory Smooth Drum	6,000	2	3

Typical Cross Drain Culvert Installation Detail Sheet

-Culvert lay shall not exceed 10%.
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
-Oversize shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
-Oversize shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume oversize shall be placed at the outlet as an energy dissipater as specified in this Detail. All oversize distance to be determined by the Contract Administrator.
-Backfill compaction for installations on existing roads shall be achieved using a jumping jack, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus at least the width of the compactor footprint used..

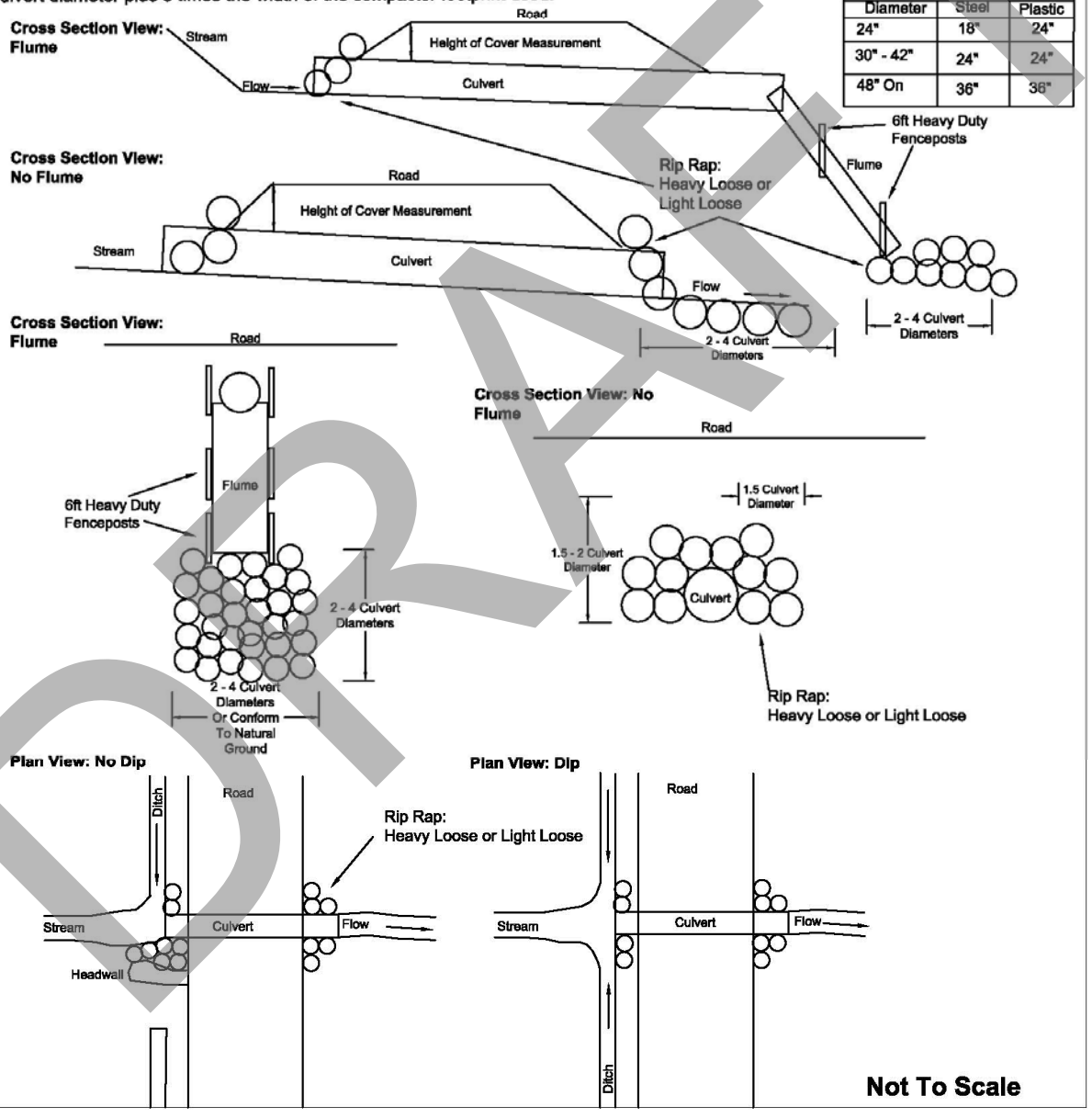
Culvert Minimum Cover		
Diameter	Steel	Plastic
18"	18"	18"



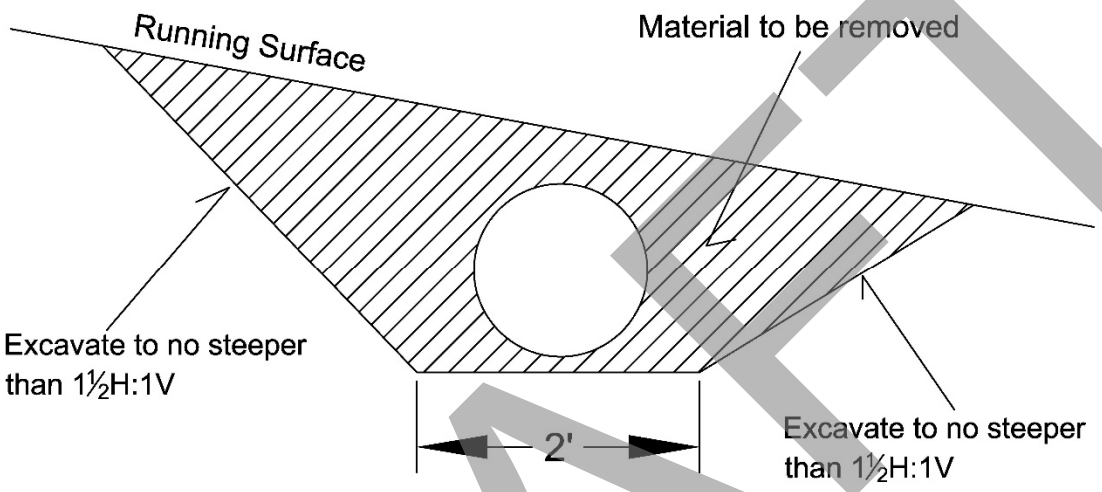
Typical Type Ns, Np Culvert Installation Detail Sheet.

-Water shall be diverted away from the work site before any "in stream" work begins, and shall continue until culvert installation is complete.
-Culvert lay shall match stream gradient up to 5%.
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
-Rip rap shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
-Rip rap shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume rip rap shall be placed along the fill at the outlet, unless there is stream drop or it is called for in the Road Plan, at which point it will be installed as an energy dissipater at the end of the culvert as specified in this Detail. All rip rap distance to be determined by the Contract Administrator or the District Engineer.
-Backfill compaction shall be achieved using a jumping jack, walk behind vibratory roller, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus 3 times the width of the compactor footprint used.

Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"



CROSSDRAIN REMOVAL DETAIL

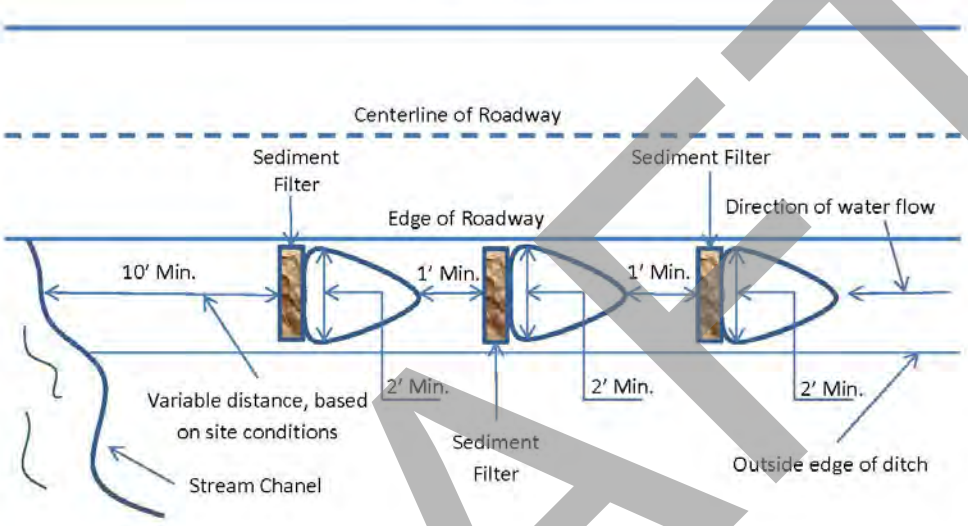


1) Excavated material may be wasted on the road surface on the downhill side of the excavation. Waste material shall be sloped at no steeper than ½ H:1V.

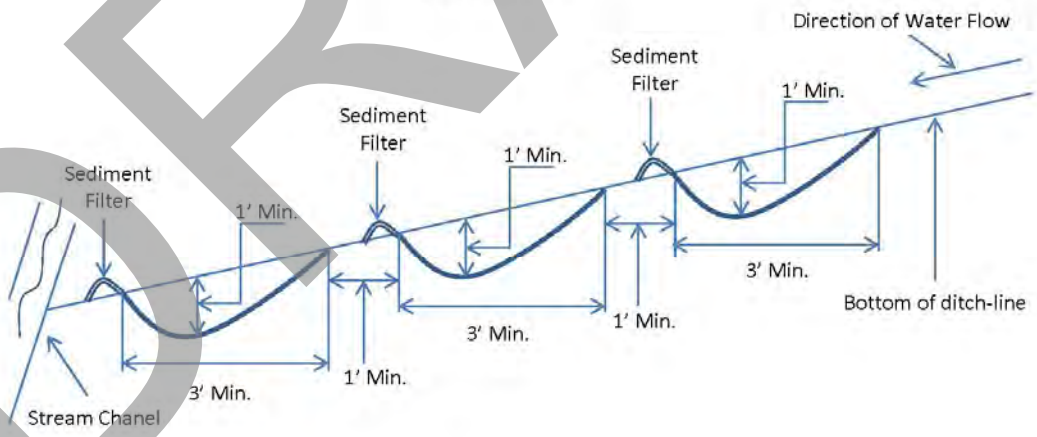
2) Resulting trench shall be keyed into the ditchline and sloped towards the outside edge of the road with a drop of at least 1 foot in 10 feet.

SEDIMENT TRAP DETAIL

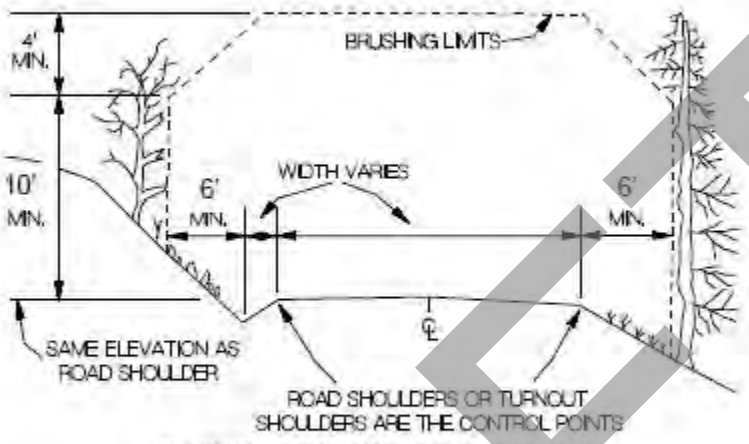
Top View



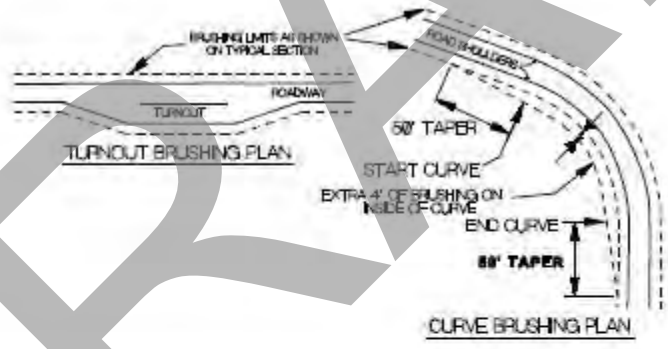
Profile View



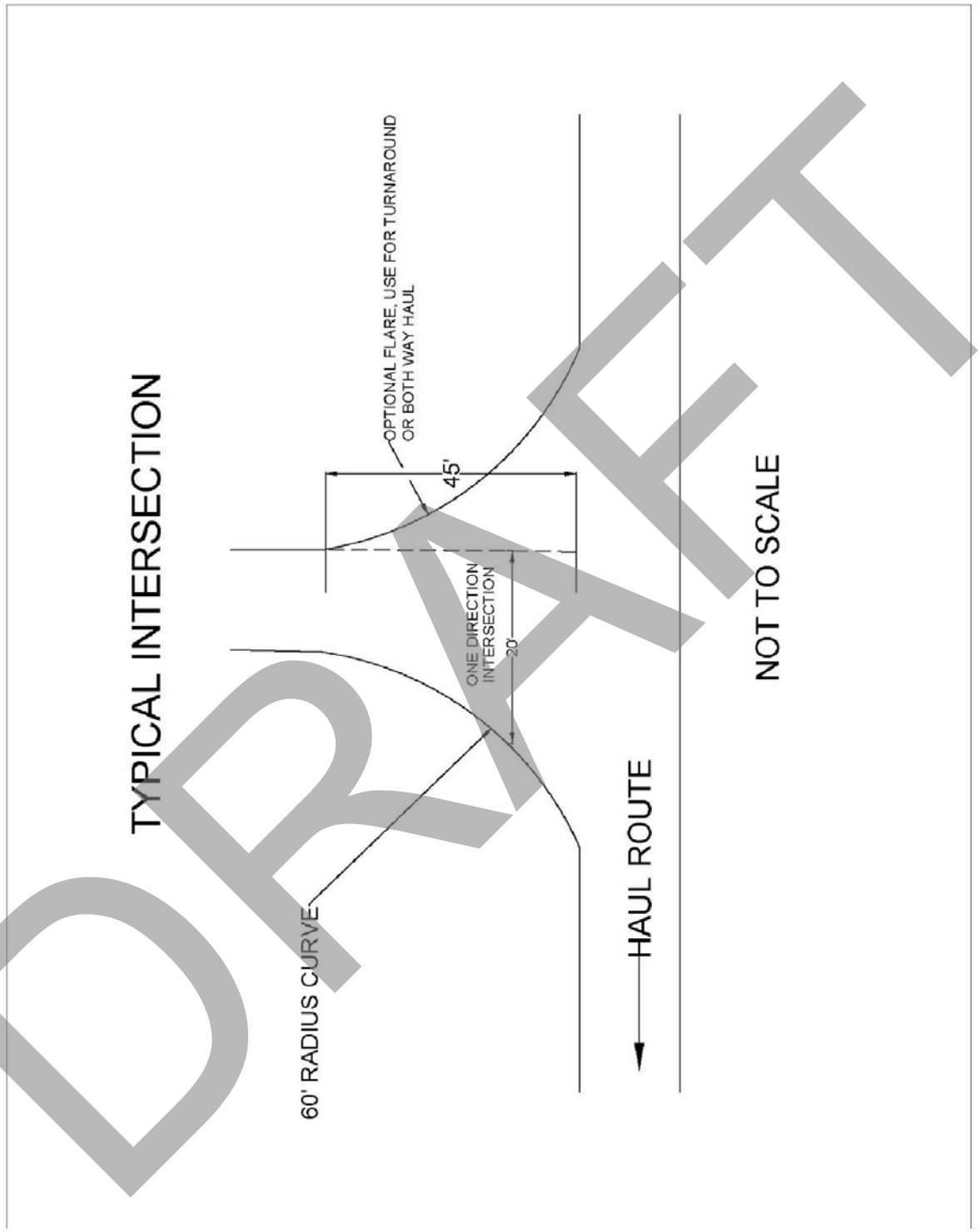
BRUSHING DETAIL



TYPICAL BRUSHING LIMITS SECTION



1. All vegetation within the brushing limits shall be cut to within 3 inches of the ground, unless otherwise directed by the Contract Administrator
2. All brush, trees, limbs, etc. shall be removed from the road surface, cut banks, culvert inlets/outlets, and ditch lines
3. All debris that may roll or move into the ditch line shall be removed and placed in a stable location


TYPICAL INTERSECTION
OPTIONAL FLARE, USE FOR TURNAROUND OR BOTH WAY HAUL
45'
ONE DIRECTION INTERSECTION
20'
60' RADIUS CURVE
HAUL ROUTE
NOT TO SCALE

SUMMARY - Road Development Costs

SALE NAME:	Last Crocker Sorts Resale		CONTRACT#:	30-107867		REGION:	Olympic		DISTRICT:	Straits				
	LEGAL DESCRIPTION:		0											
ROAD NAME:			O-3000	1+30 Spur	O-3200	O-3410	O-3420	O-3700	O-3200	O-3000	O-3000	O-3000	O-3200	TOTAL:	TOTAL SHEET #2-4
ROAD TYPE:			Construction	Construction	Construction	Construction	Construction	Construction	Recon.	Prehaul	Prehaul	Prehaul	Prehaul		
NUMBER OF STATIONS:			12.70	1.30	7.55	3.00	7.20	4.40	4.25	61.70	49.95	1.30	20.55	173.90	248.80
SIDESLOPE:			20%	20%	20%	20%	20%	20%	0%	0%	0%	0%	0%		
CLEARING AND GRUBBING:			$1,766	$181	$1,050	$417	$1,001	$612	$0	$0	$0	$0	$0	$5,028	$0
ROAD BRUSHING:			$0	$0	$0	$0	$0	$0	$77	$923	$899	$23	$0	$1,922	$674
EXCAVATION AND FILL:			$2,870	$294	$1,706	$678	$1,627	$994	$0	$0	$0	$0	$0	$8,170	$0
ROAD GRADING:			$0	$0	$0	$0	$0	$0	$28	$401	$325	$8	$134	$895	$1,611
DITCH CLEANING/CONSTRUCTION:			$0	$0	$0	$0	$0	$0	$166	$0	$0	$0	$0	$166	$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:															
Ballast:	3949	3,950	1,090	140	660	290	580	360	300	250	0	60	0	3729	220
			$45,726	$5,858	$27,416	$12,180	$24,320	$15,570	$13,549	$10,280	$0	$2,448	$0	$157,347	$9,180
Surface:	5130	5,130	510	50	320	140	330	180	190	920	1,890	30	40	4600	530
			$15,512	$1,515	$9,612	$4,265	$10,031	$5,484	$4,487	$27,219	$58,609	$888	$1,192	$138,814	$16,049
1 1/4" Minus:	200	200	0	0	0	0	0	0	0	100	0	0	0	100	100
			$0	$0	$0	$0	$0	$0	$0	$3,557	$0	$0	$0	$3,557	$2,661
CULVERTS AND FLUMES:			$0	$0	$924	$0	$1,848	$0	$924	$7,392	$0	$0	$0	$11,088	$0
STRUCTURES:			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MISC. EXPENSES:			$114	$8	$44	$18	$42	$26	$25	$847	$292	$8	$120	$1,543	$1,698
OVERHEAD:			$5,279	$628	$3,260	$1,405	$3,110	$1,815	$1,926	$4,050	$4,810	$270	$116	$26,667	$2,708
TOTAL COSTS:			$71,268	$8,484	$44,012	$18,963	$41,979	$24,501	$21,181	$54,668	$64,935	$3,646	$1,561	$355,197	$34,580
COST PER STATION:			$5,612	$6,526	$5,829	$6,321	$5,830	$5,568	$4,984	$886	$1,300	$2,804	$76	$2,043	$139
MOBILIZATION:					$5,650										
ROAD DEACTIVATION AND ABANDONMENT COSTS:					$0										
Pit Work				$0											

NOTE: This appraisal has no allowance for profit and risk.

Sheet 1 of 2

Plans to be furnished by: E Hein

Road Standard	Const.	Reconst.	Prehaul	Posthaul			TOTAL (All Roads) =	$395,426.29
Total Costs =	$210,618	$22,593	$154,952	$7,263			SALE VOLUME MBF =	5,447
Total Sta. =	36.15	4.25	170.95	211.35			TOTAL COST PER MBF =	$72.60
Cost per Sta. =	$5,826	$5,316	$906	$34			TOTAL COST PER STATION=	$935.48
Compiled by:	Emma Hein						Date:	8/292024

SUMMARY - Road Development Costs

SALE NAME:	Last Crocker Sorts Resale	CONTRACT#:	30-107867	REGION:	Olympic	DISTRICT: Straits
LEGAL DESCRIPTION:		0				
ROAD NAME:		O-3300	O-3400	O-3410	O-3410	All Post-Haul
ROAD TYPE:		Prehaul	Prehaul	Prehaul	Prehaul	Post-Haul
NUMBER OF STATIONS:		1.00	25.40	7.00	4.05	211.35
SIDESLOPE:		0%	0%	0%	0%	0%
CLEARING AND GRUBBING:		$0	$0	$0	$0	$0
ROAD BRUSHING:		$18	$457	$126	$73	$0
EXCAVATION AND FILL:		$0	$0	$0	$0	$0
ROAD GRADING:		$0	$165	$46	$26	$1,374
DITCH CLEANING/CONSTRUCTION:		$0	$0	$0	$0	$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:						
Ballast:		50	50	120	0	0
		$2,074	$2,093	$5,014	$0	$0
Surface:		0	330	140	60	0
		$0	$10,008	$4,234	$1,807	$0
1 1/4" Minus:		0	0	0	0	100
		$0	$0	$0	$0	$2,661
CULVERTS AND FLUMES:		$0	$0	$0	$0	$0
STRUCTURES:		$0	$0	$0	$0	$0
MISC. EXPENSES:		$24	$293	$81	$64	$1,236
OVERHEAD:		$169	$1,041	$760	$158	$580
TOTAL COSTS:		$2,285	$14,057	$10,261	$2,127	$5,851
COST PER STATION:		$2,285	$553	$1,466	$525	$28

Forest Access Road Maintenance Specifications

Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the cut slope/fill slope ratios. Remove slides from ditches and the roadway. Repair fill-failures in accordance with Clause 4-6 EMBANKMENT SLOPE RATIO, 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, shape, 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.

Forest Access Road Maintenance Specifications

Preventative Maintenance

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

Termination of Use or End of Season

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

Debris

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