



TIMBER NOTICE OF SALE

SALE NAME: RICHMOND FIRE SALVAGE

AGREEMENT NO: 30-106277

AUCTION: June 13, 2024 starting at 10:00 a.m., **COUNTY:** Lewis
Pacific Cascade Region Office, Castle Rock, WA

SALE LOCATION: Sale located approximately 30 miles west of Chehalis, WA

PRODUCTS SOLD AND SALE AREA: All timber, except leave trees marked with yellow "Leave Tree Area" tags, trees marked with blue paint, all down timber existing 5 years prior to the day of sale, all down timber greater than 25 inches diameter, and snags bound by the following;

Unit 1, white "Timber Sale Boundary" tags and pink flagging and reprod;

All forest products above located on part(s) of Sections 26 all in Township 14 North, Range 5 West, W.M., containing 75 acres, more or less.

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

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	23.3	8	3,238			68	307		2,281	520	57	5
Red alder	17.5		309						167	78	31	3
Hemlock	13.3		47						7	23	13	4
Maple	19.9		37						24		2	11
Redcedar	16.4		32							23	9	
Sale Total			3,663									

MINIMUM BID: \$0.00 **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: \$0.00 **SALE TYPE:** Lump Sum

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

BID DEPOSIT: \$0.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable, Shovel, and Cable-Assist. This sale is estimated to be 50 percent ground based harvest and 50 percent cable based harvest systems. Ground-based yarding is restricted to sustained slopes of 45 percent or less; Self-leveling equipment restricted to sustained slopes of 60 percent or less; Cable-assist to sustained slopes of 75 percent or less. For additional harvest requirements, refer to the H-140 clause in the contract.

ROADS: 28.40 stations of optional construction. 2.20 stations of optional reconstruction. 289.65 stations of required prehaul maintenance. 12.87 stations of abandonment.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the Jules Quarry located in Section 27, T14N, R5W W.M. on state land at no charge to



TIMBER NOTICE OF SALE

the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the Jules Quarry Stockpile located at Station 166+60 on the L-3000 on state land at no charge to the Purchaser.

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

See Road Plan for further details.

ACREAGE DETERMINATION

CRUISE METHOD: The sale acres were determined by GPS. The sale area was cruised using a variable plot cruise method.

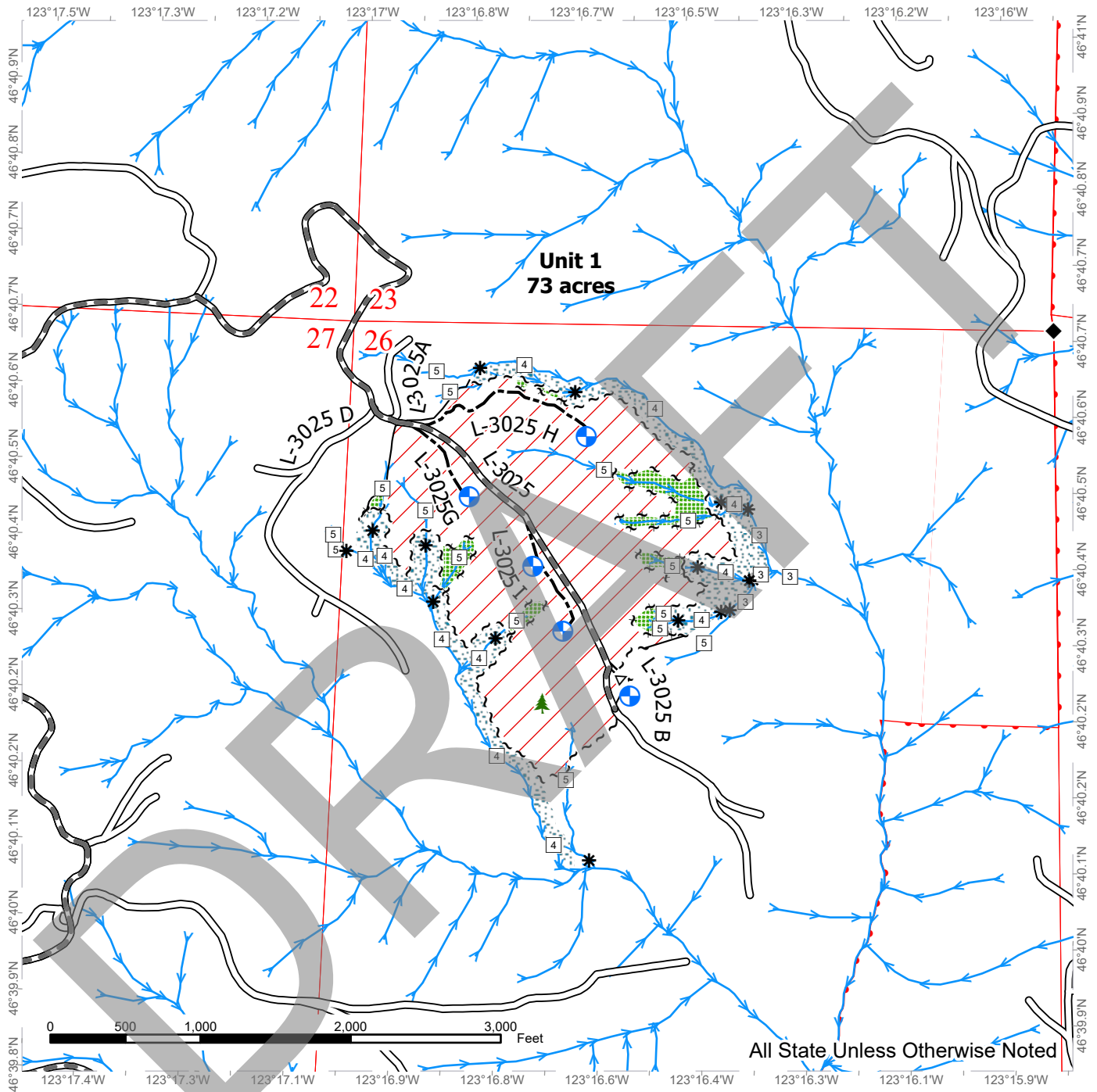
FEES: \$62,000.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale has approximately 68 MBF Peeler, 307 MBF SM DF, 673 MBF of High Quality 2 Saw DF, 82 MBF of High Quality 3 Saw DF, see cruise for details. Approximately 40 acres of fire salvage.

TIMBER SALE MAP

SALE NAME: RICHMOND FIRE SALVAGE
AGREEMENT #: None
TOWNSHIP(S): T14R5W
TRUST(S): State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 840-1751



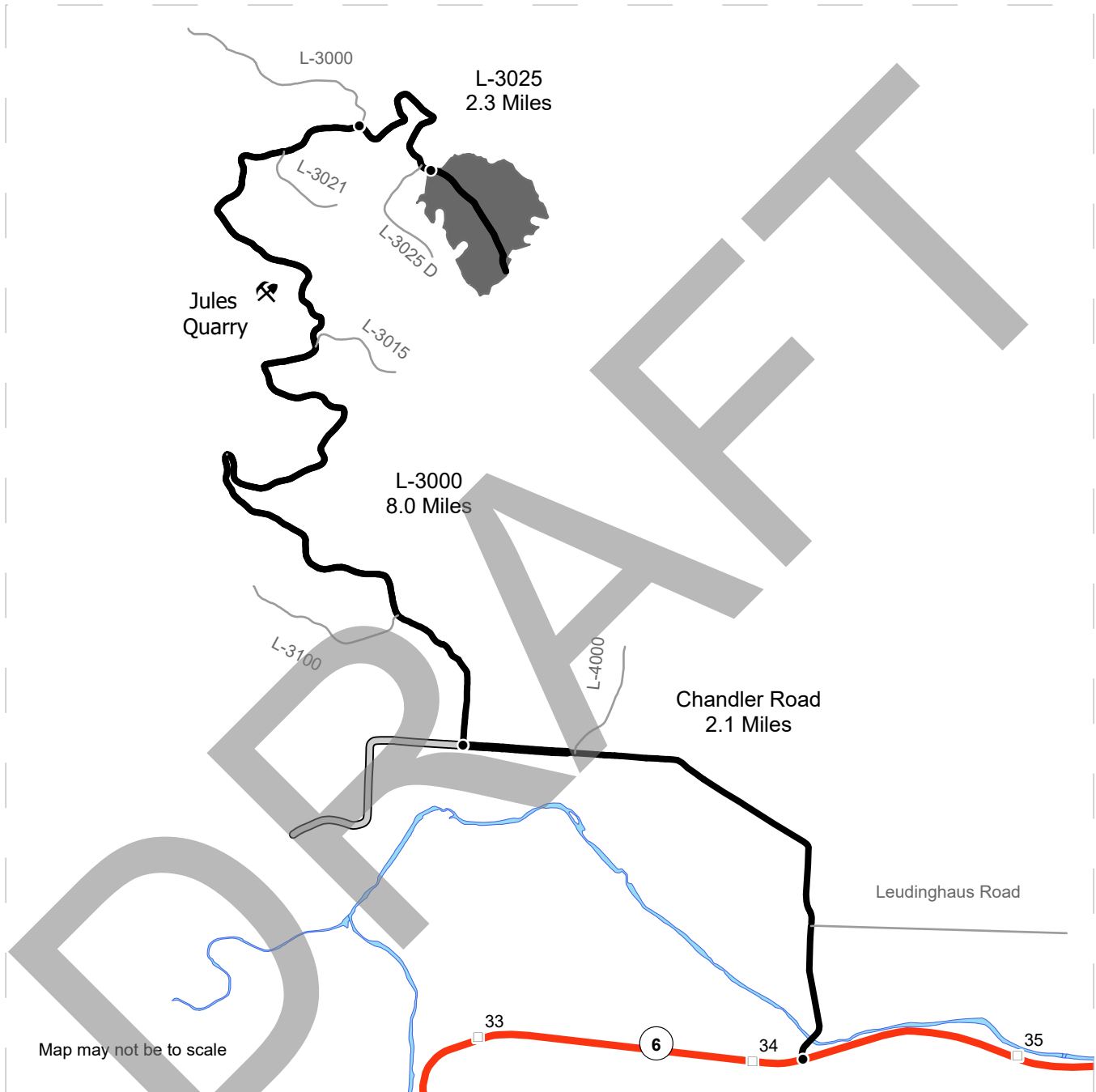
All State Unless Otherwise Noted

Variable Retention Harvest	Streams	Sale Boundary Tags
Leave Tree Area	Stream Type	Leave Tree Tags
Riparian Mgt Zone	Stream Type Break	Property Line
Existing Roads	Survey Monument	Timber Type Change
Required Pre-Haul Maintenance	Landing - Proposed	
Optional Pre-Haul Maintenance	Leave Tree Area <1/4-acre	
Optional Construction		
Optional Reconstruction		

DRIVING MAP

SALE NAME: RICHMOND FIRE SALVAGE
AGREEMENT#: 30-106277
TOWNSHIP(S): T14R5W
TRUST(S): State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 840-1751



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

DRIVING DIRECTIONS:

From Highway 6, Between Milepost 34 and 35, turn north onto Chandler Rd and follow for approximately 2.1 miles.

Turn right (north) onto the L-3000 and follow for approximately 8 miles.

Turn right (east) onto the L-3025 and follow for approximately 2.3 miles to the unit



Timber Sale Cruise Report Richmond Fire Salvage

Sale Name: RICHMOND FIRE SALVAGE

Sale Type: LUMP SUM

Region: PACIFIC CASC

District: LEWIS

Lead Cruiser: AMDouglas

Other Cruisers: BEWarnstadt

Cruise Narrative:

Location:

Richmond Fire Salvage is located 7 miles north of Pe Ell, WA. Access is provided by State Route 6, Chandler Road, and L-3000 forest roads. The L-3025 road transects the sale.

Cruise Design:

76 Variable Radius Plots were used to tally 362 trees. 208 trees were measured. Diameters were recorded to the nearest whole inch. Bole heights were measured to a 5" top or estimated break point.

Trees were segmented into lengths based on a preference for long logs and taking into account location of defect. Preferred length for conifers is 40'. Preferred length for hardwoods is 30'.

Plots that landed in leave tree areas were dropped from the cruise.

Timber Quality:

Approximately 25 acres in the south-southwest corner of the unit burned in August 2023. Burning was limited to the understory in most places. A majority of Douglas-firs survived. Scorch marks on boles are mostly one-sided and under 20'.

The entire east side of the unit (east of L-3025) experienced no fire.

Timber appears to have been naturally regenerated. Composition is Douglas-fir with pockets of mature red alder.

Fir boles display good form. Some contain high quality and/or pole segments. Alder diameters average large, but some contain extensive rot.

Logging and Stand Conditions:

Topography ranges from moderate-steep slopes. Projected harvesting methods are 50% ground-based, 50% cable. Unburned parts of the sale contain sword fern and other shrubs. Dense thickets of vine maple are scattered about. Most burned parts of the sale are clear or contain dead un-consumed brush.

Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade						
				All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	23.3	7.5		3,239	68	307	2,281	520	57	5
RA	17.5			309			167	78	61	3
WH	13.3			47			7	23	13	4
MA	19.9			38			24		2	11
RC	16.4			31				23	9	
ALL	20.6	7.5		3,663	68	307	2,479	644	142	23

Timber Sale Notice Weight (tons)

Sp	Tons by Grade						
	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	21,354	328	1,749	14,254	4,503	482	37
RA	2,522			1,179	606	716	21
WH	469			51	242	147	29
RC	387				282	105	
MA	367			208		44	115
ALL	25,098	328	1,749	15,692	5,632	1,494	203

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 (%)
259.3	5.1	188.9	2.8	48,976	5.8

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
RICHMOND FIRE SALVAGE	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	74.8	83.9	76	39	0
All		74.8	83.9	76	39	0

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	DEAD	2 SAW	Domestic	20.4	40	300	248	17.2	129.1	18.6
DF	DEAD	3 SAW	Domestic	10.6	27	21	21	0.0	13.7	1.5

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	17.2	40	20,534	18,979	7.6	8,894.2	1,419.7
DF	LIVE	2 SAW	HQ-A	14.3	40	493	480	2.6	254.6	35.9
DF	LIVE	2 SAW	HQ-B	18.0	40	8,949	8,523	4.8	3,906.6	637.5
DF	LIVE	2 SAW	Pole	14.8	40	2,265	2,265	0.0	1,069.7	169.4
DF	LIVE	3 PEELER	HQ-A	26.3	37	925	912	1.3	327.8	68.2
DF	LIVE	3 SAW	Domestic	8.8	37	5,551	5,322	4.1	3,606.2	398.1
DF	LIVE	3 SAW	HQ-B	10.3	40	1,119	1,093	2.3	622.7	81.7
DF	LIVE	3 SAW	Pole	9.5	39	519	519	0.0	260.1	38.8
DF	LIVE	4 SAW	Domestic	5.6	26	770	761	1.1	482.1	56.9
DF	LIVE	CULL	Cull	7.7	5	145	0	100.0	0.0	0.0
DF	LIVE	SPECIAL MILL	HQ-A	19.3	40	4,169	4,111	1.4	1,749.4	307.5
DF	LIVE	UTILITY	Pulp	6.1	13	68	68	0.0	37.4	5.1
MA	DEAD	CULL	Cull	5.0	7	3	0	100.0	0.0	0.0
MA	DEAD	UTILITY	Pulp	11.0	30	111	111	0.0	61.9	8.3
MA	LIVE	2 SAW	Domestic	13.6	31	397	323	18.5	207.9	24.2
MA	LIVE	4 SAW	Domestic	7.3	29	52	32	37.3	43.6	2.4
MA	LIVE	CULL	Cull	10.5	22	93	0	100.0	0.0	0.0
MA	LIVE	UTILITY	Pulp	5.0	34	39	39	0.0	53.5	2.9
RA	LIVE	2 SAW	Domestic	14.2	30	2,468	2,226	9.8	1,178.8	166.5
RA	LIVE	3 SAW	Domestic	10.7	30	1,169	1,049	10.3	605.9	78.4
RA	LIVE	4 SAW	Domestic	6.5	31	909	816	10.3	716.3	61.0
RA	LIVE	CULL	Cull	7.0	15	145	0	100.0	0.0	0.0
RA	LIVE	UTILITY	Pulp	5.0	17	37	37	0.0	21.2	2.7
RC	LIVE	3 SAW	Domestic	9.6	38	359	304	15.4	281.7	22.7
RC	LIVE	4 SAW	Domestic	5.2	27	122	115	5.4	104.8	8.6
RC	LIVE	CULL	Cull	5.6	7	11	0	100.0	0.0	0.0
WH	LIVE	2 SAW	Domestic	22.6	40	107	91	15.0	51.3	6.8
WH	LIVE	3 SAW	Domestic	8.9	40	339	302	11.0	242.1	22.6
WH	LIVE	4 SAW	Domestic	5.0	25	180	172	4.2	146.8	12.9
WH	LIVE	CULL	Cull	5.0	6	4	0	100.0	0.0	0.0
WH	LIVE	UTILITY	Pulp	11.0	21	59	59	0.0	28.9	4.4

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 7	LIVE	Pulp	5.5	13	48	0.0	27.0	3.6
DF	5 - 7	LIVE	Cull	5.8	6	0	100.0	0.0	0.0
DF	5 - 7	LIVE	Domestic	6.2	32	1,885	3.5	1,287.7	141.0

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 7	LIVE	Pole	7.2	38	97	0.0	57.1	7.3
DF	8 - 11	LIVE	Cull	9.6	4	0	100.0	0.0	0.0
DF	8 - 11	LIVE	Domestic	9.6	36	4,183	3.9	2,793.7	312.9
DF	8 - 11	LIVE	HQ-B	10.3	40	1,093	2.3	622.7	81.7
DF	8 - 11	DEAD	Domestic	10.6	27	21	0.0	13.7	1.5
DF	8 - 11	LIVE	Pulp	10.7	13	20	0.0	10.3	1.5
DF	8 - 11	LIVE	Pole	10.8	40	422	0.0	203.0	31.6
DF	12 - 18	LIVE	Cull	12.0	6	0	100.0	0.0	0.0
DF	12 - 18	LIVE	Pole	14.8	40	2,265	0.0	1,069.7	169.4
DF	12 - 18	LIVE	HQ-B	15.2	40	3,214	3.9	1,591.2	240.4
DF	12 - 18	LIVE	Domestic	15.4	40	10,214	6.2	5,026.0	764.0
DF	12 - 18	LIVE	HQ-A	16.6	40	2,237	2.1	1,042.1	167.3
DF	12 - 18	DEAD	Domestic	17.1	40	86	13.2	42.4	6.4
DF	19 - 19	LIVE	HQ-A	19.2	40	407	0.0	174.5	30.5
DF	19 - 19	LIVE	HQ-B	19.4	40	518	2.1	222.6	38.7
DF	19 - 19	LIVE	Domestic	19.5	40	1,436	15.3	723.0	107.4
DF	20+	LIVE	HQ-B	22.2	40	4,791	5.6	2,092.8	358.4
DF	20+	LIVE	Cull	22.3	5	0	100.0	0.0	0.0
DF	20+	LIVE	HQ-A	22.9	39	2,859	1.2	1,115.2	213.8
DF	20+	LIVE	Domestic	23.3	40	7,343	7.7	3,152.1	549.3
DF	20+	DEAD	Domestic	23.7	40	163	19.1	86.7	12.2
MA	5 - 7	DEAD	Cull	5.0	7	0	100.0	0.0	0.0
MA	5 - 7	LIVE	Pulp	5.0	34	39	0.0	53.5	2.9
MA	5 - 7	LIVE	Cull	6.0	23	0	100.0	0.0	0.0
MA	5 - 7	LIVE	Domestic	7.1	27	19	38.6	25.4	1.4
MA	5 - 7	DEAD	Pulp	7.7	30	20	0.0	18.4	1.5
MA	8 - 11	LIVE	Domestic	8.1	36	14	35.4	18.2	1.0
MA	12 - 18	LIVE	Domestic	13.6	31	323	18.5	207.9	24.2
MA	12 - 18	DEAD	Pulp	14.3	30	90	0.0	43.5	6.8
MA	12 - 18	LIVE	Cull	18.6	20	0	100.0	0.0	0.0
RA	5 - 7	LIVE	Pulp	5.0	17	37	0.0	21.2	2.7
RA	5 - 7	LIVE	Domestic	5.9	31	559	12.6	514.0	41.8
RA	5 - 7	LIVE	Cull	6.0	12	0	100.0	0.0	0.0
RA	8 - 11	LIVE	Cull	9.2	24	0	100.0	0.0	0.0
RA	8 - 11	LIVE	Domestic	10.2	30	1,305	9.3	808.3	97.6
RA	12 - 18	LIVE	Domestic	14.2	30	2,226	9.8	1,178.8	166.5
RC	5 - 7	LIVE	Cull	5.3	7	0	100.0	0.0	0.0
RC	5 - 7	LIVE	Domestic	5.4	30	177	4.1	165.4	13.2

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
RC	8 - 11	LIVE	Cull	10.1	2	0	100.0	0.0	0.0
RC	8 - 11	LIVE	Domestic	10.1	37	102	21.8	109.9	7.6
RC	12 - 18	LIVE	Domestic	13.7	38	85	8.2	70.2	6.4
RC	20+	LIVE	Domestic	21.3	40	55	25.0	41.0	4.1
WH	5 - 7	LIVE	Cull	5.0	6	0	100.0	0.0	0.0
WH	5 - 7	LIVE	Domestic	5.1	27	214	3.4	170.9	16.0
WH	8 - 11	LIVE	Domestic	9.7	40	259	12.5	218.0	19.4
WH	8 - 11	LIVE	Pulp	11.0	21	59	0.0	28.9	4.4
WH	20+	LIVE	Domestic	22.6	40	91	15.0	51.3	6.8

DRAFT

Cruise Unit Report RICHMOND FIRE SALVAGE

Unit Sale Notice Volume (MBF): RICHMOND FIRE SALVAGE

Sp	DBH	Rings/In	Age	MBF Volume by Grade						
				All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	23.3	7.5		3,239	68	307	2,281	520	57	5
RA	17.5			309			167	78	61	3
WH	13.3			47			7	23	13	4
MA	19.9			38			24		2	11
RC	16.4			31				23	9	
ALL	20.6	7.5		3,663	68	307	2,479	644	142	23

Unit Cruise Design: RICHMOND FIRE SALVAGE

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	74.8	83.9	76	39	0

Unit Cruise Summary: RICHMOND FIRE SALVAGE

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	148	279	3.7	2
RA	31	52	0.7	0
WH	10	10	0.1	0
MA	7	9	0.1	0
RC	12	12	0.2	0
ALL	208	362	4.8	2

Unit Cruise Statistics: RICHMOND FIRE SALVAGE

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	199.9	70.7	8.1	216.7	25.2	2.1	43,302	75.0	8.4
RA	37.2	169.1	19.4	110.8	26.9	4.8	4,127	171.3	20.0
WH	7.2	358.5	41.1	87.1	55.6	17.6	624	362.7	44.7
MA	6.4	364.0	41.8	78.3	43.8	16.5	505	366.6	44.9
RC	8.6	293.5	33.7	48.7	41.4	12.0	419	296.4	35.7
ALL	259.3	44.6	5.1	188.9	40.5	2.8	48,976	60.2	5.8

Unit Summary: RICHMOND FIRE SALVAGE

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	DEAD	CUT	1	ALL	34.0	110	141	164	155	5.5	0.1	0.7	0.1	11.6
DF	LIVE	CUT	147	ALL	23.4	99	127	45,662	43,146	5.5	66.7	199.1	41.2	3,227.3
MA	DEAD	CUT	1	ALL	20.0	70	81	77	56	27.2	0.3	0.7	0.2	4.2
MA	LIVE	CUT	6	ALL	19.9	58	71	617	449	27.2	2.7	5.7	1.3	33.6
RA	LIVE	CUT	31	ALL	17.5	65	81	4,728	4,127	12.7	22.3	37.2	8.9	308.7
RC	LIVE	CUT	12	ALL	16.4	39	49	492	419	14.9	5.9	8.6	2.1	31.3
WH	LIVE	CUT	10	ALL	13.3	44	55	689	624	9.4	7.4	7.2	2.0	46.7
ALL	LIVE	CUT	206	ALL	21.2	83	106	52,188	48,765	6.6	105.0	257.9	55.4	3,647.6
ALL	DEAD	CUT	2	ALL	24.3	80	96	241	211	12.4	0.4	1.4	0.3	15.8
ALL	ALL	ALL	208	ALL	21.2	83	106	52,429	48,976	6.6	105.4	259.3	55.7	3,663.4

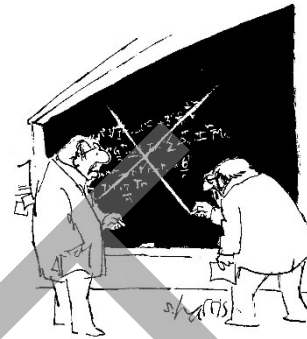
FPHP NEEDED (Y/N) Y

Is abandonment of existing road required? (Y/N) N

PACIFIC CASCADE REGION - ENGINEERING

ROAD PLAN PEER REVIEW CHECKLIST

PROJECT: RICHMOND FIRE SALVAGE



This project has been reviewed for the following:

Initials:

- KW **CONTRACT CLAUSES** – Selection of proper clauses. Clauses adequately describe desired work. Clauses do not conflict with maps, details, pit plans, etc. Punctuation, syntax, grammar and organization is correct.
- KW **TYPICAL SECTION SHEET, ROCK LIST, & CULVERT LIST** – Sheets match clauses and maps. Requirements and quantities make sense. Rock List adds up correctly.
- KW **MAPS** – All roads listed in Section 1 are shown on maps. Maps identify locations of all culverts, landings, waste areas, endhaul/overhaul areas, etc. Legend, north arrow and scale are shown. Line types are easy to identify. Map is at a legible scale.
- KW **DETAIL SHEETS** – All detail sheets referred to in the clauses are included. Detail sheets have been edited as necessary.
- KW **PIT PLANS** – Selection of proper clauses. Map clearly shows all areas of development, wasting, stockpiling, reclamation, etc. Development plan appears logical for long term use of pit. Development plan allows for safe operation in the pit.
- KW **ROAD COST SPREADSHEET** –All cost elements captured. Material costs used are current. Summary cells are adding correctly. No conflicts exist between pages. Stationing, culverts and rock volume match the road plan.
- KW **EXCISE TAX SHEET** – Totals match road plan.
- KW **LOGGING PLAN** – Plan matches road plan clauses and maps.

I certify that I have reviewed this project for the elements initialed above and have found that it meets or exceeds Department and Regional Standards to the best of my knowledge.

GRANT GERRITSEN

Originator of Project

12/27/2023

Date

REVIEWED

By Keith Wyatt at 1:15 pm, Jan 11, 2024

Peer Reviewer

01/11/2023

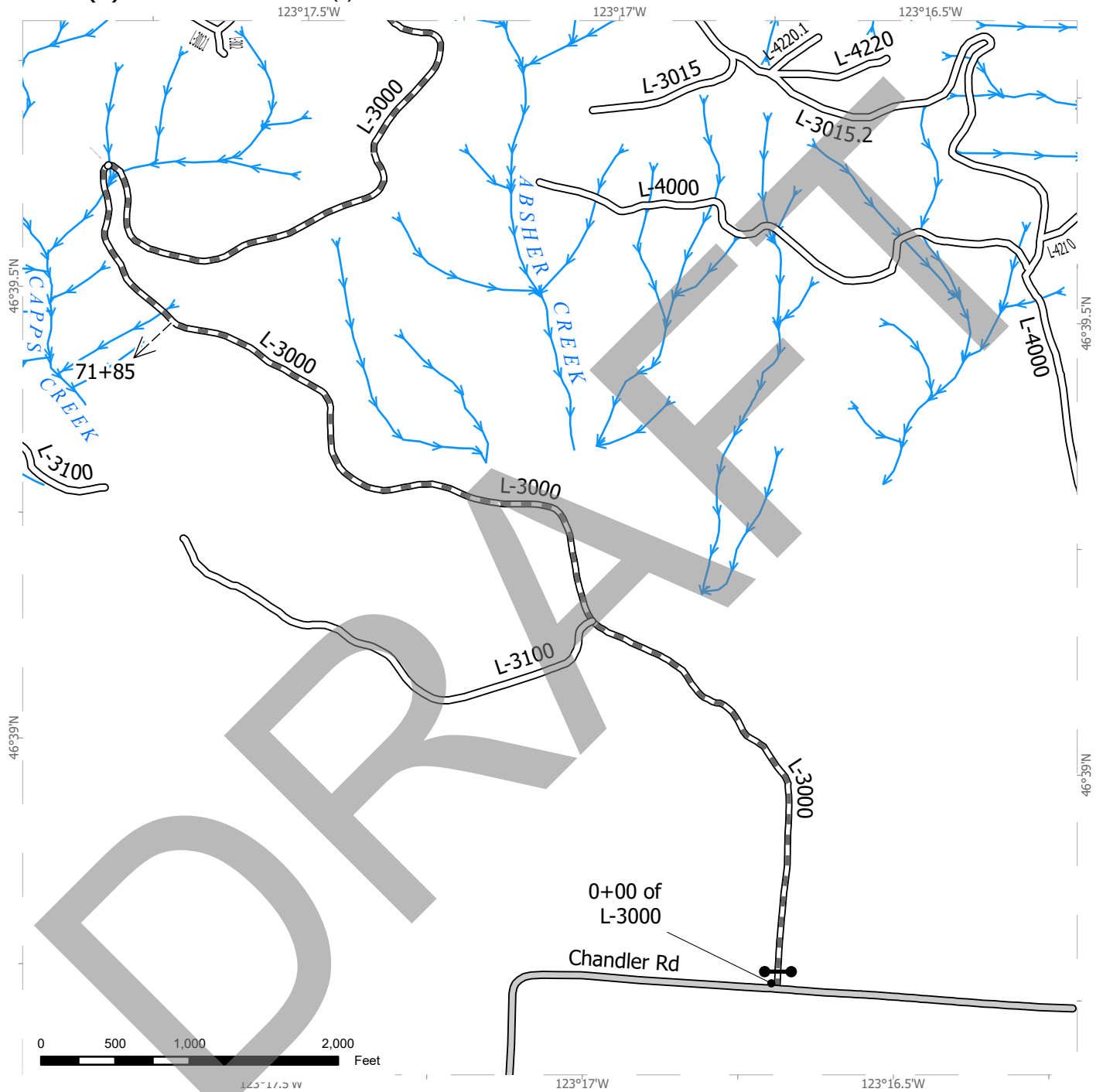
Date






Comments:

ROAD PLAN MAP

SALE NAME: RICHMOND FIRE SALVAGE
AGREEMENT #: None
TOWNSHIP(S): T14R5W
TRUST(S): State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 160-960

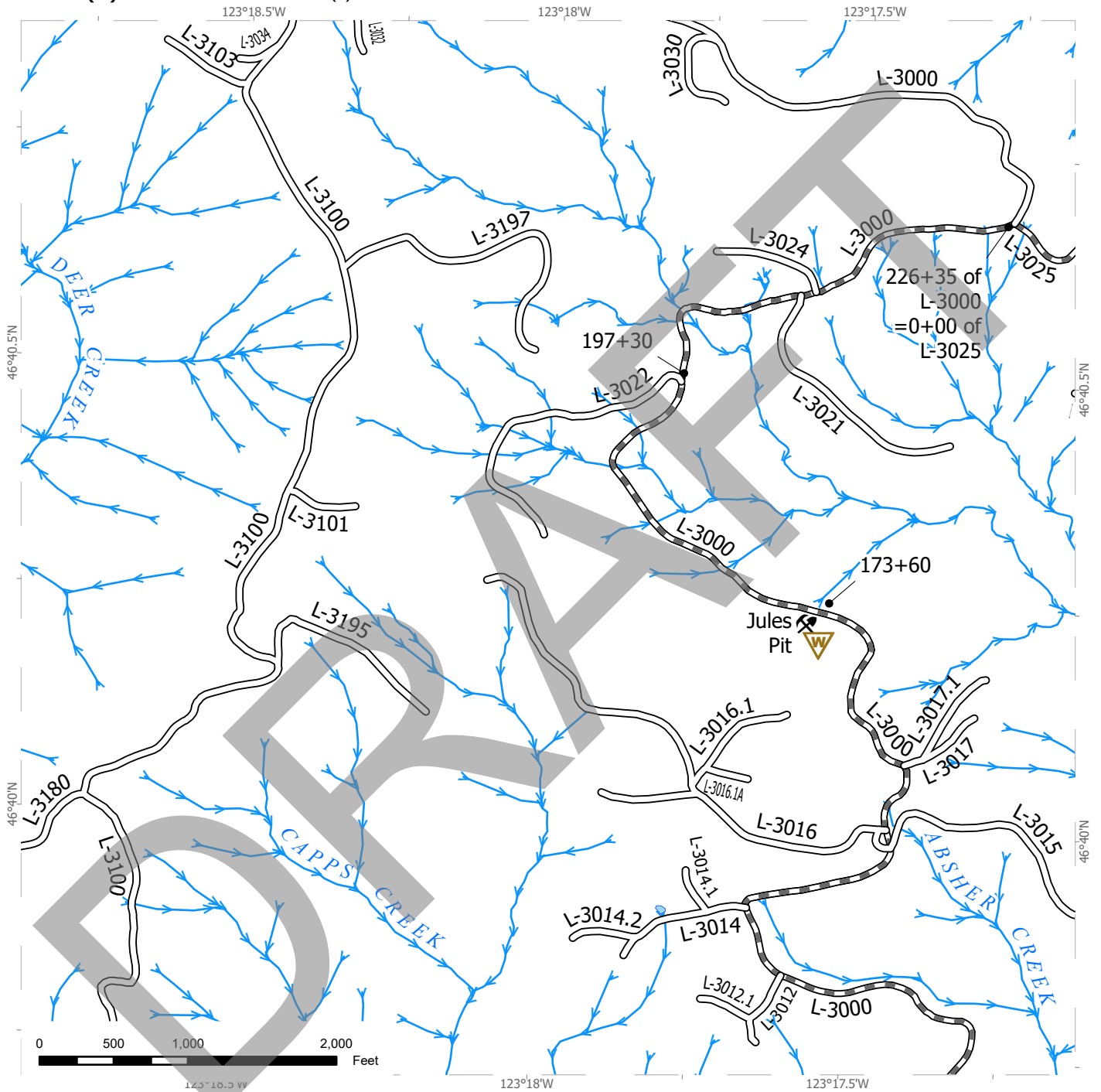


 County Road	 Ditchout
 Existing Roads	 Gate (PCP 1-1)
 Required Pre-Haul Maintenance	

ROAD PLAN MAP

SALE NAME: RICHMOND FIRE SALVAGE
AGREEMENT #: None
TOWNSHIP(S): T14R5W
TRUST(S): State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 160-960



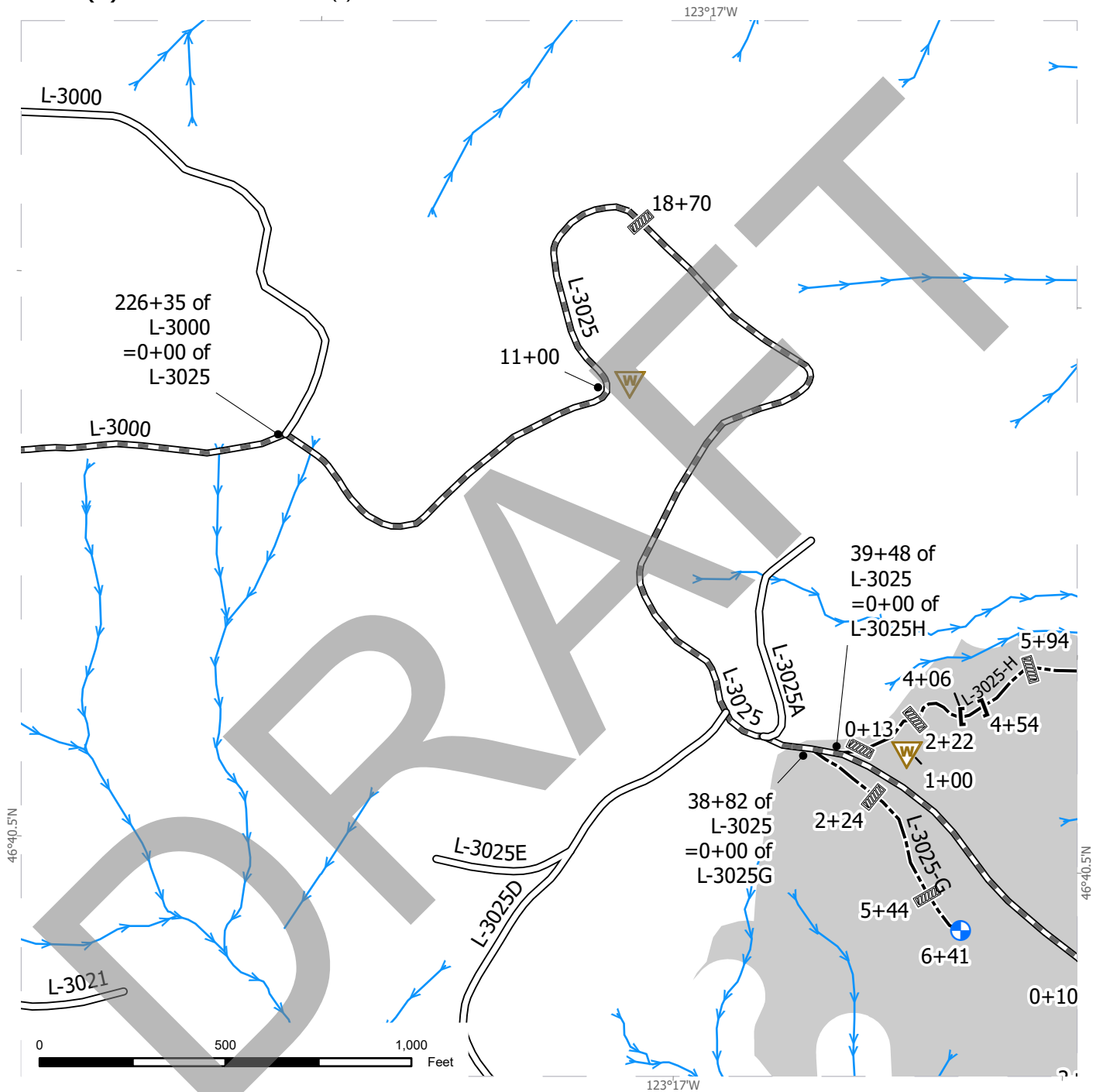
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|---|---|
|  Existing Roads |  Rock Pit |
|  Required Pre-Haul Maintenance |  Waste Area |



ROAD PLAN MAP

SALE NAME: RICHMOND FIRE SALVAGE
AGREEMENT #: None
TOWNSHIP(S): T14R5W
TRUST(S): State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 160-960



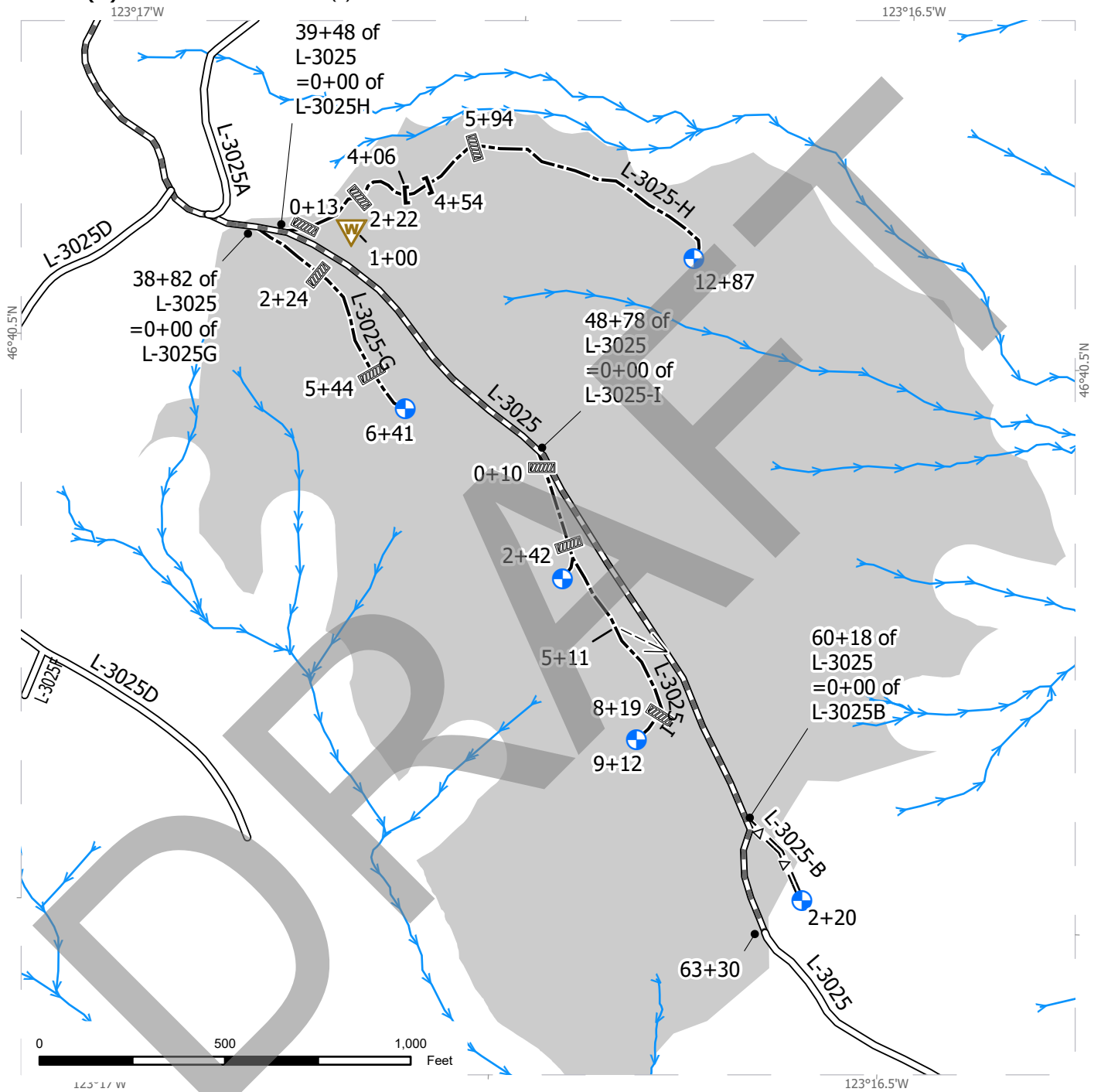
Existing Roads	End Haul Area	Harvest Unit
Required Pre-Haul Maintenance	Culvert	Landing - Proposed
Optional Construction	Waste Area	



ROAD PLAN MAP

SALE NAME: RICHMOND FIRE SALVAGE
AGREEMENT #: None
TOWNSHIP(S): T14R5W
TRUST(S): State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 160-960



- | | | |
|-------------------------------|--------------------|--------------|
| Existing Roads | Ditchout | Harvest Unit |
| Required Pre-Haul Maintenance | End Haul Area | |
| Optional Pre-Haul Maintenance | Culvert | |
| Optional Construction | Landing - Proposed | |
| Optional Reconstruction | Waste Area | |



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

RICHMOND FIRE SALVAGE TIMBER SALE ROAD PLAN
LEWIS COUNTY
LEWIS DISTRICT
PACIFIC CASCADE REGION

AGREEMENT NO.: 30-106277

STAFF ENGINEER: G. GERRITSEN

DRAWN & COMPILED BY: ALICIA COMPTON

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-3000	0+00 to 226+35	Pre-Haul Maintenance
L-3025	0+00 to 63+30	Pre-Haul Maintenance

0-3 OPTIONAL ROADS

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-3025-B	0+00 to 2+20	Reconstruction
L-3025-G	0+00 to 6+41	Construction
L-3025-H	0+00 to 12+87	Construction
L-3025-I	0+00 to 9+12	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to: clearing; grubbing; right-of-way debris disposal; excavation and/or embankment to and compaction of subgrade; construction and compaction of waste areas; end haul and compaction of waste; landing construction; acquisition and installation of drainage structures; manufacture, application and compaction of rock.

0-6 PRE-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
L-3000	0+00 to 226+35	Grade, compact graded surface
	20+75 to 21+75	6" lift of 2 ½ Inch Minus
	20+25 to 22+25	Remove and Replace Sediment Fence
	71+50	Ditchout Left
	106+90 to 109+10	Brushing, Ditch Reconstruction
	147+65 to 148+45	Brushing, Ditch Reconstruction
	155+90 to 157+60	Brushing, Ditch Reconstruction
	197+30	Add Energy Dissapater
	198+30	20cy Spot Rock
L-3025	0+00 to 63+30	Grading, Remove Berms
	0+00 to 25+00	Brushing
	10+55 to 18+70	Ditch Reconstruction
	18+70	Install 18x30 Crossdrain
	28+40	Clean Inlet and Outlet
	28+75	Reconstruct Turnaround Left
	38+40 to 46+20	Ditch Cleaning

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

Purchaser may develop an existing rock source. Rock source development will involve clearing, stripping, end haul and compaction of waste, drilling and shooting or ripping, and manufacture of rock. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING and is subject to the requirements of the ROCK SOURCE DEVELOPMENT PLAN.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-6 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

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

1-9 DAMAGED METALLIC COATING

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

1-15 ROAD MARKING

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

- Road centerline marked with construction stakes, orange flagging, orange paint and RPs for new construction.
- Road centerline marked with orange flagging, orange paint and RPs for reconstruction.
- Pre-haul maintenance marked with wooden stakes and/or painted trees, orange flagging and orange paint.

1-16 CONSTRUCTION STAKES SET BY STATE

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-3025-H	3+44 to 5+35	Slope Stakes and RP’s

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

Purchaser shall notify the Contract Administrator a minimum of 3 business days before work begins.

1-23 ROAD WORK PHASE APPROVAL

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

- Subgrade construction, drainage installation and subgrade compaction;
- Rock application and compaction.

1-25 ACTIVITY TIMING RESTRICTION

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

<u>Activity</u>	<u>Closure Period</u>
Road work	October 1 st through April 30 th

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, Purchaser shall comply with a maintenance plan to include further protection of state resources. Purchaser shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense. If other operators are using, or desire to use these roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220.1 STATE SUSPENDS OPERATION, the Contract Administrator will suspend road work or hauling right-of-way timber, forest products, or rock under the following conditions:

- Wheel track rutting exceeds 6 inches on jaw run, pit run or native surface roads.
- Wheel track rutting exceeds 2 inches on crushed rock roads.
- Surface or base stability problems persist.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-33 SNOW PLOWING RESTRICTION

Snowplowing will be allowed after the execution of a SNOW PLOWING AGREEMENT, which is available from the Contact Administrator upon request. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

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

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

2-4 PASSAGE OF LIGHT VEHICLES

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following road(s), Purchaser shall use a grader to shape the existing surface before timber haul. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

<u>Road</u>	<u>Stations</u>
L-3000	0+00 to 226+35
L-3025	0+00 to 63+30

2-6 CLEANING CULVERTS

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

<u>Road</u>	<u>Stations</u>
L-3025	28+40

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following road(s), Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before timber haul and must be done in accordance with the TYPICAL SECTION SHEET and CULVERT AND DRAINAGE SPECIFICATION DETAIL. Pulling ditch material across the road or mixing in with the road surface is not allowed.

<u>Road</u>	<u>Stations</u>
L-3025	38+40 to 46+20

2-8 MAINTAINING EROSION CONTROL STRUCTURES

On the following road(s), Purchaser shall maintain the listed erosion control structures. Work must be completed before timber haul and must be done in accordance with the SEDIMENT FENCE INSTALLATION DETAIL and CULVERT AND DRAINAGE SPECIFICATION DETAIL.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
L-3000	20+25 to 22+25	Remove and replace sediment fence
L-3000	197+30	Install outlet energy dissipator – 5cy

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following road(s), Purchaser shall cut vegetative material up to 4 inches in diameter, including limbs, as shown on the ROADSIDE BRUSHING DETAIL. Brushing must be achieved by manual or mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
L-3000	106+90 to 109+10
	147+65 to 148+45
	155+90 to 157+60
L-3025	0+00 to 25+00

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 4 feet high between the marked right-of-way boundaries and within waste and debris areas, or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 45%.
- Against standing trees, unless approved by the contract administrator.

3-10 GRUBBING

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

3-12 STUMP PLACEMENT

Purchaser shall place grubbed stumps adjacent to the road shoulder and in compliance with all other clauses in this road plan.

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

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

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all components of a tree that remain as by-products after the manufacture of logs, including but not limited to tree tops, branches, limbs, needles, leaves, and stumps that are larger than one cubic foot in volume within the grubbing limits as shown on the TYPICAL SECTION SHEET and ROADSIDE BRUSHING DETAIL.

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, 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

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

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris in natural openings unless otherwise detailed in this road plan. Where natural openings are unavailable or restrictive, alternate debris disposal methods are subject to the written approval of the Contract Administrator.

3-32 END HAULING ORGANIC DEBRIS

On slopes greater than 45%, Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS or to a waste area located by the Contract Administrator.

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

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

<u>Road</u>	<u>Stations</u>
L-3025-H	3+44 to 5+35

4-2 PIONEERING

Pioneering may not extend past construction that will be completed during the current construction season. In addition, the following actions must be taken as pioneering progresses:

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

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

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 15 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.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-12 FULL BENCH CONSTRUCTION

On the following road(s), and where side slopes exceed 45%, Purchaser shall use full bench construction for the entire subgrade width. Purchaser shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
L-3025-H	4+06 to 4+54	600cy

4-21 TURNOUTS

Purchaser shall construct turnouts as designated on the ROCK LIST. Location changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the ROCK LIST.

4-22 TURNAROUNDS

Purchaser shall construct turnarounds as designated on the ROCK LIST. Turnarounds must be no larger than 30 feet long and 30 feet wide. Location changes are subject to written approval by the Contract Administrator.

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

Purchaser shall not pull ditch material across the road or mix in with the road surface. Excavated material must be disposed of as specified in Clause 4-36 DISPOSAL OF WASTE MATERIAL.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as identified in the table below, as needed, and as directed by the Contract Administrator. 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.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
L-3000	71+85	Ditchout Left, drain ponding area
L-3025-I	5+11	Ditchout Right

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 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 and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in the listed designated areas. Additional waste areas may also be identified or approved by the Contract Administrator. The amount of material allowed in a waste area is at the discretion of the Contract Administrator.

<u>Waste Area Location</u>	<u>Station</u>	<u>Comments</u>
L-3000	173+60	See Jules Pit Development Plan for location
L-3025	11+00	Outside of Corner to NE
L-3025-H	1+00	Right side of road, outside of the clearing limits

4-38 PROHIBITED WASTE DISPOSAL AREAS

Purchaser shall not deposit waste material in the following areas:

- Within 25 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- Within a riparian management zone.
- Within a wetland 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.

4-48 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 4 inches in any dimension.

4-55 ROAD SHAPING

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

4-56 DRY WEATHER SHAPING

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

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material in accordance with the COMPACTION LIST by routing equipment over the entire width of each lift. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed subgrades in accordance with the COMPACTION LIST by routing equipment over the entire width except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before rock application.

4-62 DRY WEATHER COMPACTION

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

4-63 EXISTING SURFACE COMPACTION

Purchaser shall compact maintained road surfaces in accordance with the COMPACTION LIST by routing equipment over the entire width.

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

On the following road(s), Purchaser shall remove berms from road shoulders. The construction of ditchouts is required where ponding could result from the effects of sidecast debris.

<u>Road</u>	<u>Stations</u>
L-3025	0+00 to 63+30

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the CULVERT AND DRAINAGE 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 10-24.

5-6 CULVERT TYPE

Purchaser shall install culverts made of plastic in accordance with Clauses 10-15 through 10-24.

5-7 USED CULVERT MATERIAL

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

<u>Road</u>	<u>Stations</u>
L-3025-H	0+00 to 12+87

5-10 CULVERT MARKER INSTALLATION

At all new permanent culvert installations, Purchaser shall provide and install culvert markers at the inlet in accordance with the CULVERT MARKER INSTALLATION DETAIL.

5-12 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the 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 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 1 foot of compacted subgrade over the top of the culvert at the shallowest point.

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE LIST. No placement by end dumping or dropping of rock is allowed. Energy dissipater installation is subject to approval by the Contract Administrator.

5-25 CATCH BASINS

Purchaser shall construct catch basins in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions of catch basins are 3 feet wide and 4 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

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

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be waterbarred by November 1. Purchaser shall construct waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical distance of no more than 10 feet between waterbars or between natural drainage paths, and with a maximum spacing of 300 feet.

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

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

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Jules Pit	NW ¼ SE ¼ T14R05W S27	Select Pit Run, Quarry Spalls

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall not remove more than 30 cubic yards of 2 ½ Inch Minus rock. Purchaser shall not remove additional yardage without prior written approval from the Contract Administrator. Other stockpiles may not be used without prior written approval from the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>	<u>Quantity</u>
Jules Pit	Sta. 166+60 L-3000	2 ½ Inch Minus	30cy

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN and approved in writing by the Contract Administrator. Purchaser shall notify the Contract Administrator a minimum of 5 business days before starting any operations in the rock source.

<u>Source</u>	<u>Rock Type</u>
Jules Pit	Select Pit Run

6-22 FRACTURE REQUIREMENT FOR ROCK

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

6-23 ROCK GRADATION TYPES

Purchaser shall provide or manufacture rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

6-32 2 ½-INCH MINUS CRUSHED ROCK

% Passing 2 ½" square sieve	100%
% Passing 2" square sieve	60 - 100%
% Passing 1" square sieve	50 - 70%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #200 sieve	15% maximum

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.

6-41 SELECT PIT RUN ROCK

No more than 50 percent of the rock may be larger than 6 inches in any dimension and no rock may be larger than 12 inches in any dimension. Select Pit Run rock may not contain more than 5 percent by weight of organic debris, dirt, and trash. Rock may require processing to meet this specification.

6-43 QUARRY SPALLS

% Passing 8" square sieve	100%
% Passing 3" square sieve	40% maximum
% Passing 3/4" square sieve	10% maximum

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

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurements 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 loose yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

6-56 ROCK MEASUREMENT BY TRUCK VOLUME

Measurement of spot rock, energy dissipaters, culvert backfill, and landing rock is on a cubic yard truck measure basis. Purchaser shall measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck and shall give them to the Contract Administrator on a weekly basis during rocking operations.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction and drainage installation before rock application.

6-71 ROCK APPLICATION

Purchaser shall apply rock in accordance with the specifications and quantities shown on the ROCK LIST. Rock must be spread, shaped, and compacted full width concurrent with rock hauling operations. Road surfaces must be compacted in accordance with the COMPACTION LIST by routing equipment over the entire width.

6-73 ROCK FOR WIDENED PORTIONS

Purchaser shall apply rock to turnarounds, turnouts, and areas with curve widening to the same depth and specifications as the traveled way, unless otherwise specified in the ROCK LIST.

SECTION 7 – STRUCTURES

7-5 STRUCTURE DEBRIS

Contractor shall not allow debris from the installation or removal of structures to enter any stream. Contractor shall maintain a clean jobsite, with all materials stored away from the high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream must be removed immediately and placed in the site(s) designated for stockpiling or disposal. Contractor shall retrieve all material carried downstream from the jobsite.

7-57 CULVERT SHAPE CONTROL

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

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

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

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 50 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.

8-15 REVEGETATION

On the following road(s) and waste areas, Purchaser shall spread seed on all exposed soils resulting from road work activities using manual dispersion. Other methods of covering must be approved in writing by the Contract Administrator. Required seed not spread by the termination of this contract will become the property of the state.

<u>Road</u>	<u>Location</u>	<u>Qty (lbs)*</u>	<u>Type</u>	<u>Timing</u>
L-3025-H	All Stations	47	Grass Seed	Concurrent with Abandonment
Waste Areas	All Waste Areas	50		As directed by the Contract Administrator

*Quantities are estimates only. Actual quantities may vary and are the responsibility of the Purchaser.

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed.

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 2-inch tall grass. Purchaser shall reapply the grass seed 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 at no additional cost to the state.

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all exposed soil at a rate of 50 pounds per acre of exposed soil. Grass seed must meet the following specifications:

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

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
Perennial Rye	35-45
Red Fescue	30-40
Highland Bent	5-15
White Clover	10-20
Inert and Other Crop	0.5

SECTION 9 – POST-HAUL ROAD WORK

9-1 EARTHEN BARRICADES

Purchaser shall construct barricades in accordance with the EARTHEN BARRICADE DETAIL.

<u>Road</u>	<u>Stations</u>
L-3025-H	0+00

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

9-21 ROAD ABANDONMENT

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

<u>Road</u>	<u>Stations</u>
L-3025-H	0+00 to 12+87

9-22 LIGHT ABANDONMENT

- Remove road shoulder berms except as directed.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 100 feet, or as marked in the field.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Block roads with earthen barricades in accordance with the attached EARTHEN BARRICADE DETAIL.
- Remove culverts.
- Remove ditch cross drain culverts and leave the resulting trench open.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Apply grass seed concurrently with abandonment and in accordance with Section 8 EROSION CONTROL.
- Cover, concurrently with abandonment, all exposed soils within 100 feet of any live stream, with a 4-inch deep layer of straw.

SECTION 10 MATERIALS

10-6 GEOTEXTILE FOR SEDIMENT FENCE

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for filtration. Woven slit-film geotextiles are not allowed. Material must be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Unsupported between posts
Apparent opening size	D 4751	No. 30 max., No. 100 min.>
Water permittivity	D 4491	0.02 sec ⁻¹
Grab tensile strength	D 4632	180 lb in machine direction, 100lb in cross-machine direction
Grab tensile elongation	D 4632	30% max. at 180 lb or more
Ultraviolet stability	D 4355	70% retained after 500 hours of exposure

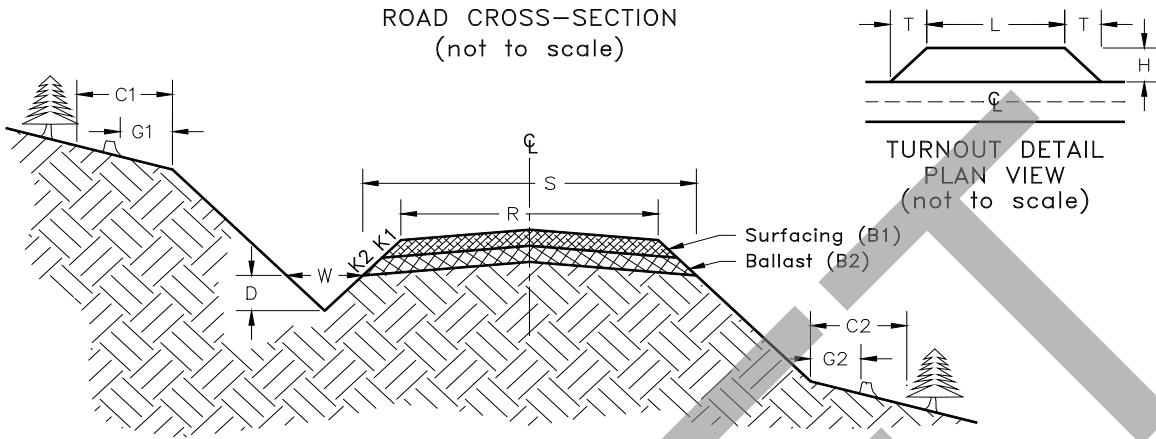
10-17 CORRUGATED PLASTIC CULVERT

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.

10-22 PLASTIC BAND

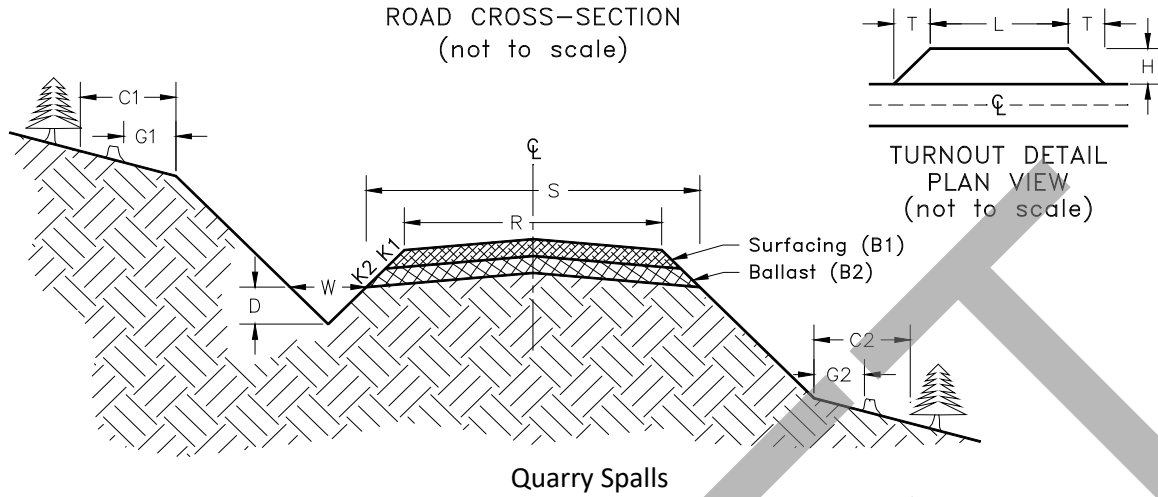
Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used. Couplings must be split coupling band. Split coupling bands must have a minimum of four corrugations, two on each side of the pipe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

TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width	Road Width	Ditch Width	Ditch Depth	Crown @ CL	Grubbing Limits		Clearing Limits	
				ft	ft	ft	ft		in	ft	ft	ft
				S	R	W	D		G1	G2	C1	C2
L-3000	0+00	226+35	A	15	12	3	1	4	5	5	10	10
L-3025	0+00	63+30	A	15	12	3	1	4	5	5	10	10
L-3025-B	0+00	2+20	C	15	12	3	1	4	0	0	10	10
L-3025-G	0+00	6+41	C	15	12	3	1	4	0	0	10	10
L-3025-H	0+00	12+87	C	15	12	3	1	4	5	5	10	10
L-3025-I	0+00	9+12	C	15	12	3	1	4	5	5	10	10

ROCK LIST

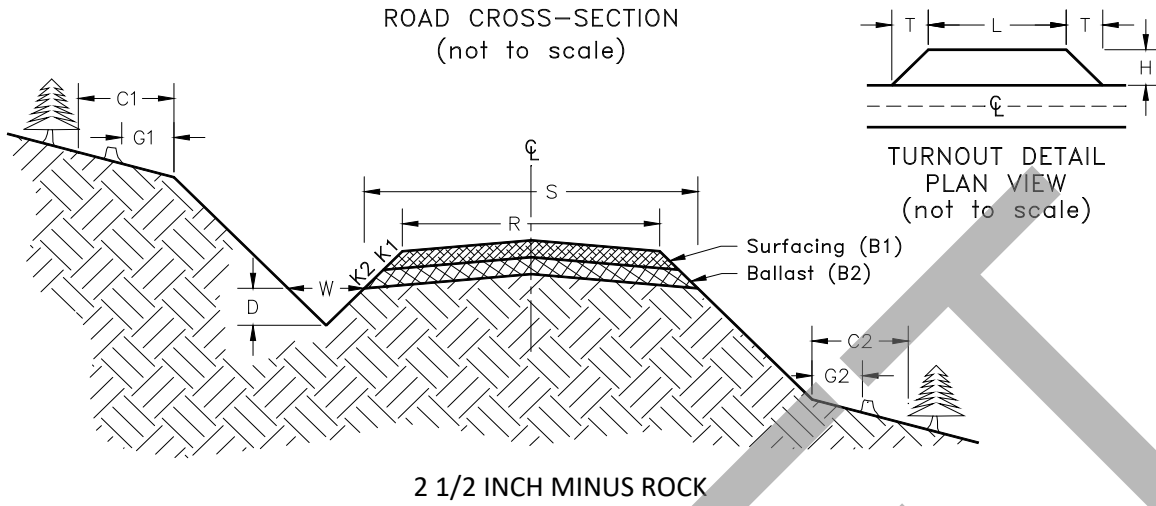


Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2				Jules Pit	L	H	T
L-3000	Culvert Armoring				1	0.5	0.5				
L-3025	Culvert Armoring				1	1.0	1				
L-3025-G	Culvert Armoring				1	2.0	2				
L-3025-H	Culvert Armoring				1	5.0	5				
L-3025-I	Culvert Armoring				1	3.0	3				

*Optional Rock in accordance with 6-75

REQUIRED QUARRY SPALLS: 12 CY
 OPTIONAL QUARRY SPALLS: 0 CY

ROCK LIST

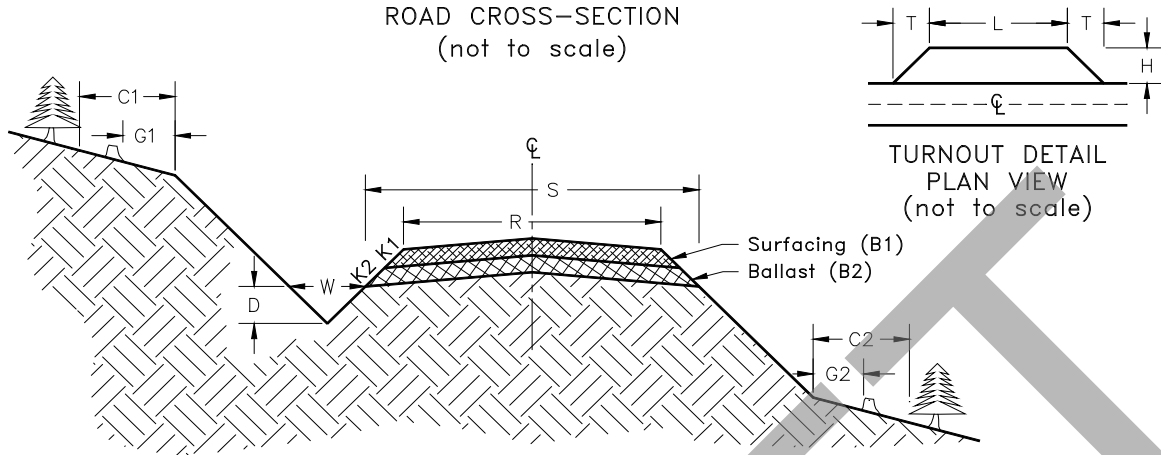


Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K1	B1				Jules Pit Stockpile	L	H	T
L-3000	20+75	21+75	1 1/2:1	6	30	1.00	30				
L-3000	Spot Rock				20	1.00	20				

*Optional Rock in accordance with 6-75

REQUIRED 2 1/2 INCH MINUS ROCK: 50 CY

ROCK LIST



SELECT PIT RUN

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2				Jules Pit	L	H	T
L-3025-B	0+00	2+20	1 1/2:1	12	63	2.20	139				
		Landings			54	1	54				
L-3025-G	0+00	6+41	1 1/2:1	12	63	6.41	404				
		Turnarounds			34	1	34				
		Landings			54	1	54				
L-3025-H	0+00	12+87	1 1/2:1	12	63	12.87	811				
		Turnarounds			34	1	34				
		Turnouts			19	1	19		40	10	25
		Landings			54	1	54				
L-3025-I	0+00	9+12	1 1/2:1	12	63	9.12	575				
		Turnarounds			34	2	68				
		Turnouts			19	1	19		40	10	25
		Landings			54	2	108				

*Optional Rock in accordance with 6-75

REQUIRED SELECT PIT RUN: 2373 CY

CULVERT LIST

Road Number	Location	Culvert			Armoring (C.Y.)			Backfill	Bedding	Inlet	Remarks
		Dia (In)	Length	Type	Inlet	Outlet	Type	Material	Material	Marker	
L-3025	18+70	18	30	PD	0.5	0.5	QS	NT	NT	Y	
L-3025-G	2+24	18	30	PD	0.5	0.5	QS	NT	NT	Y	
L-3025-G	5+44	18	30	PD	0.5	0.5	QS	NT	NT	Y	
L-3025-H	0+13	18	40	PD	0.5	0.5	QS	NT	NT	N	Temp
L-3025-H	2+22	18	30	PD	0.5	0.5	QS	NT	NT	N	Temp
L-3025-H	5+94	18	30	PD	0.5	0.5	QS	NT	NT	N	Temp
L-3025-H	8+48	18	30	PD	0.5	0.5	QS	NT	NT	N	Temp
L-3025-H	12+11	18	30	PD	0.5	0.5	QS	NT	NT	N	Temp
L-3025-I	0+10	18	40	PD	0.5	0.5	QS	NT	NT	Y	
L-3025-I	2+42	18	30	PD	0.5	0.5	QS	NT	NT	Y	
L-3025-I	8+19	18	30	PD	0.5	0.5	QS	NT	NT	Y	
L-3000	197+30	0	0			0.5	QS			N	Outlet Energy Dissipator

Key:

- QS - Quarry Spalls
- NT - Native (bank run)
- PD - Polyethylene Pipe Double Wall

COMPACTION LIST

Road	Type	Max Depth Per Lift (inches)	Equipment Type	Minimum Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All Roads	Subgrade	12	Vibratory Smooth Drum	14,000	4	3
All Roads	Fill	12	Vibratory Smooth Drum	14,000	4	3
All Roads	Waste Area	24	Excavation	28,000	-	-
All Roads	Pre-haul Surface	6	Vibratory Smooth Drum	14,000	5	3
All Roads	Rock	12	Vibratory Smooth Drum	14,000	3	3

DRAFT

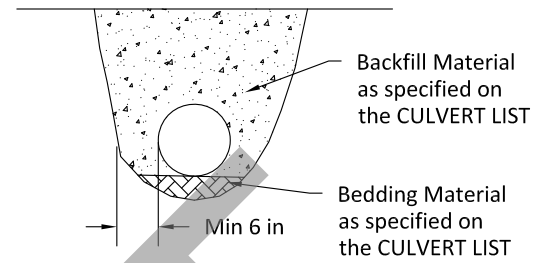
CULVERT AND DRAINAGE SPECIFICATION DETAIL
PAGE 1 OF 2

INSTALLATION REQUIREMENTS:

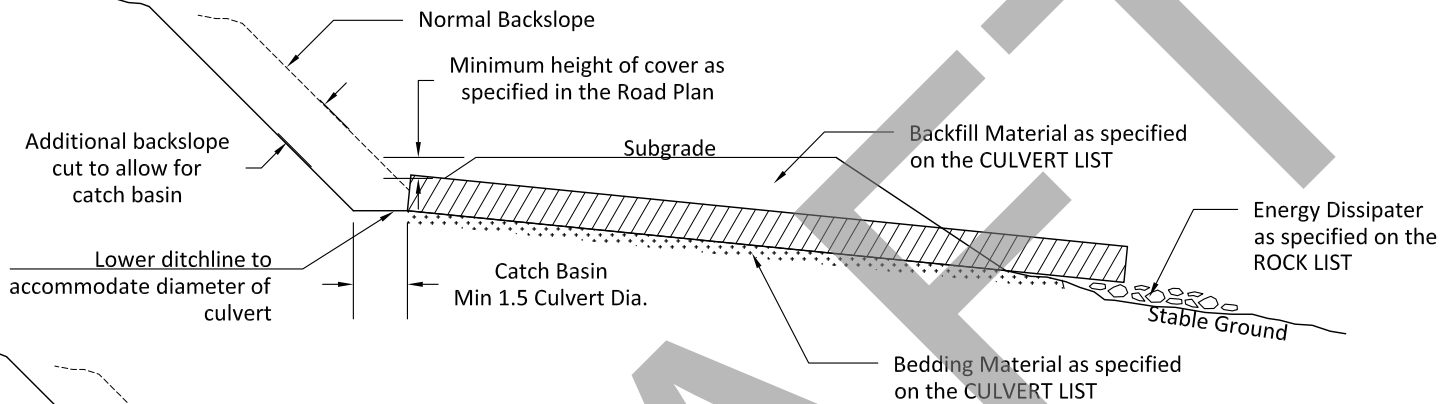
1. Proper preparation of foundation and placement of any required bedding material shall precede the installation of all culverts. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform, dense, unyielding base. The pipe must be uniformly supported along the barrel.
2. Backfill material shall be compacted under the culvert haunches, around the sides, and above the culvert in accordance with the COMPACTION LIST.

ALL DRAWINGS ARE NOT TO SCALE

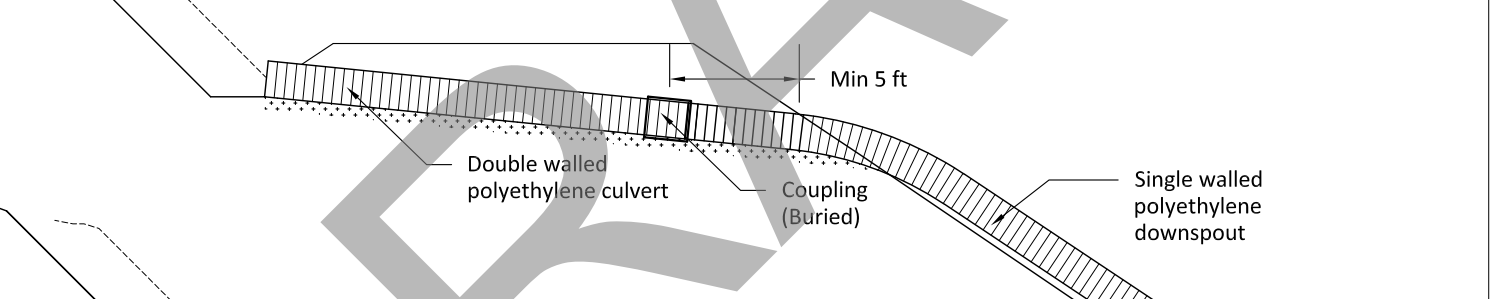
CROSS SECTION



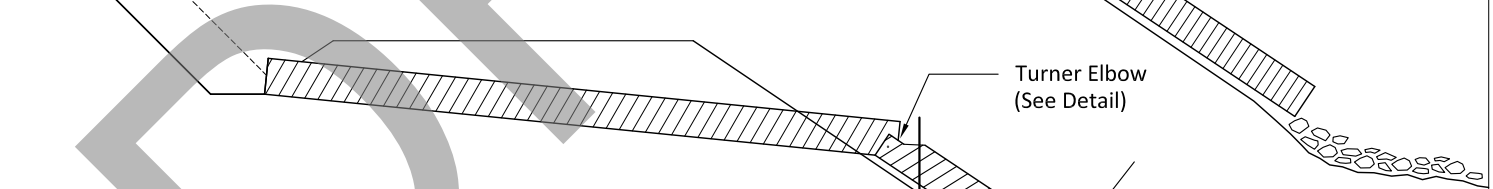
CULVERT PROFILE (TYPICAL)



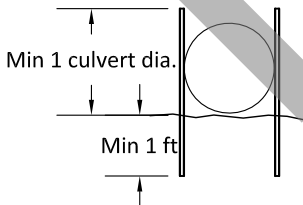
CULVERT WITH DOWNSPOUT OPTION 1



CULVERT WITH DOWNSPOUT OPTION 2

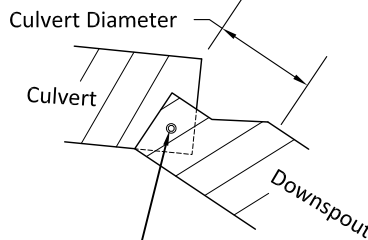


SUPPORT STAKES



Stake Material: T-post with rust protection coating.
Connections: Bolt support stakes to the culvert with $\frac{5}{8}$ " u-bolts, with washers on both the inside and outside of the culvert.
Alternative staking methods may be approved, in writing, by the Contract Administrator.

TURNER ELBOW

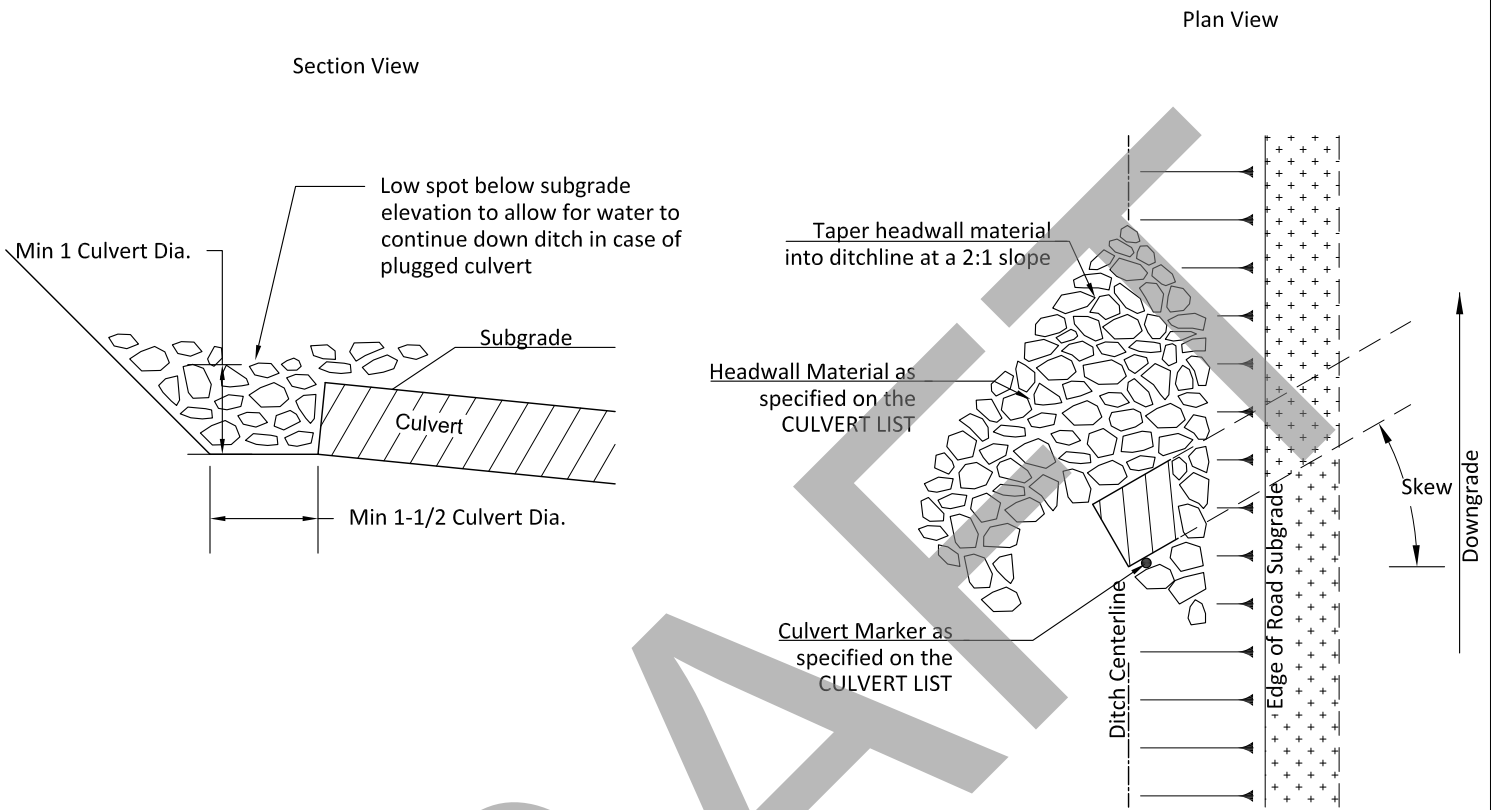


Bolted with $\frac{5}{8}$ " galvanized bolts and washers (both sides)
Downspout must be 6 inches larger in diameter than the culvert.

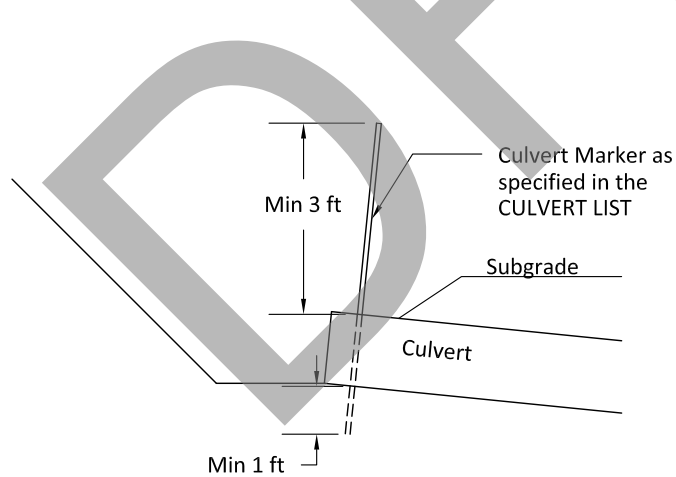
Support Stakes (See Detail)

CULVERT AND DRAINAGE SPECIFICATION DETAIL
PAGE 2 OF 2

HEADWALLS

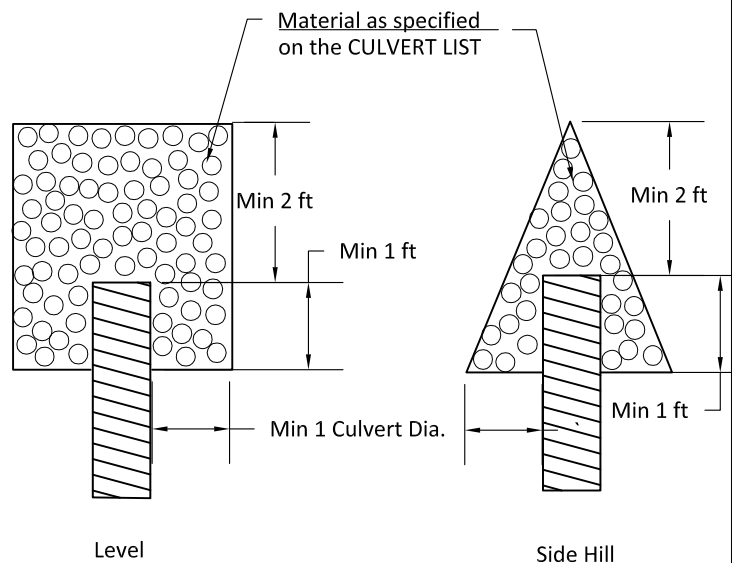


CULVERT MARKERS



Culvert Marker Material: 1 Inch I.D., Schedule 40 PVC Pipe, White. Marker must be capped on the top.
 Culvert Marker Placement: Place on uphill side of culvert, between corrugations if possible.
 Alternative culvert marker types may be approved, in writing, by the Contract Administrator.

ENERGY DISSIPATORS



Min Energy Dissipater Depth: 1 Culvert Dia.

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 1 of 2

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 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

Page 2 of 2

Preventative Maintenance

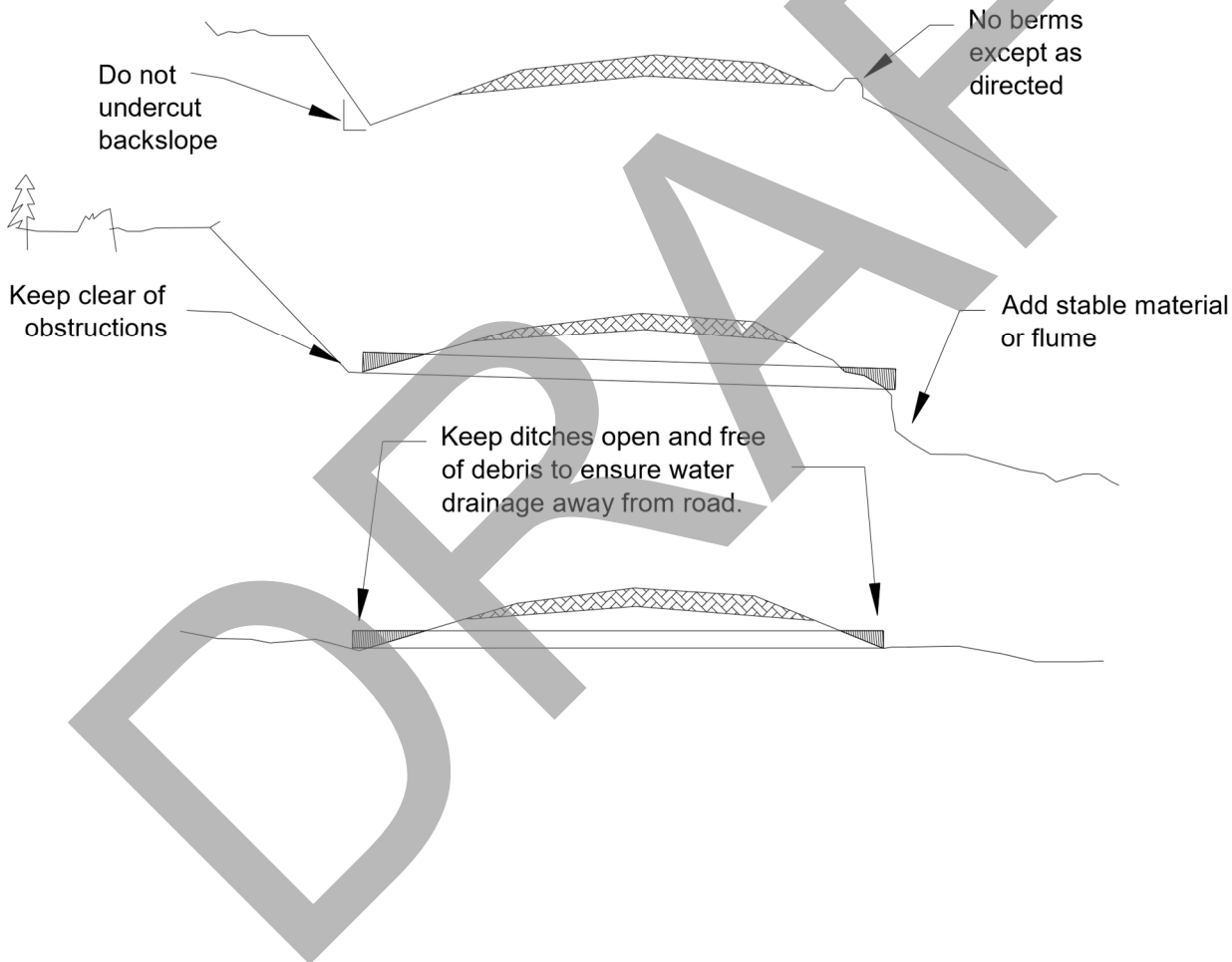
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

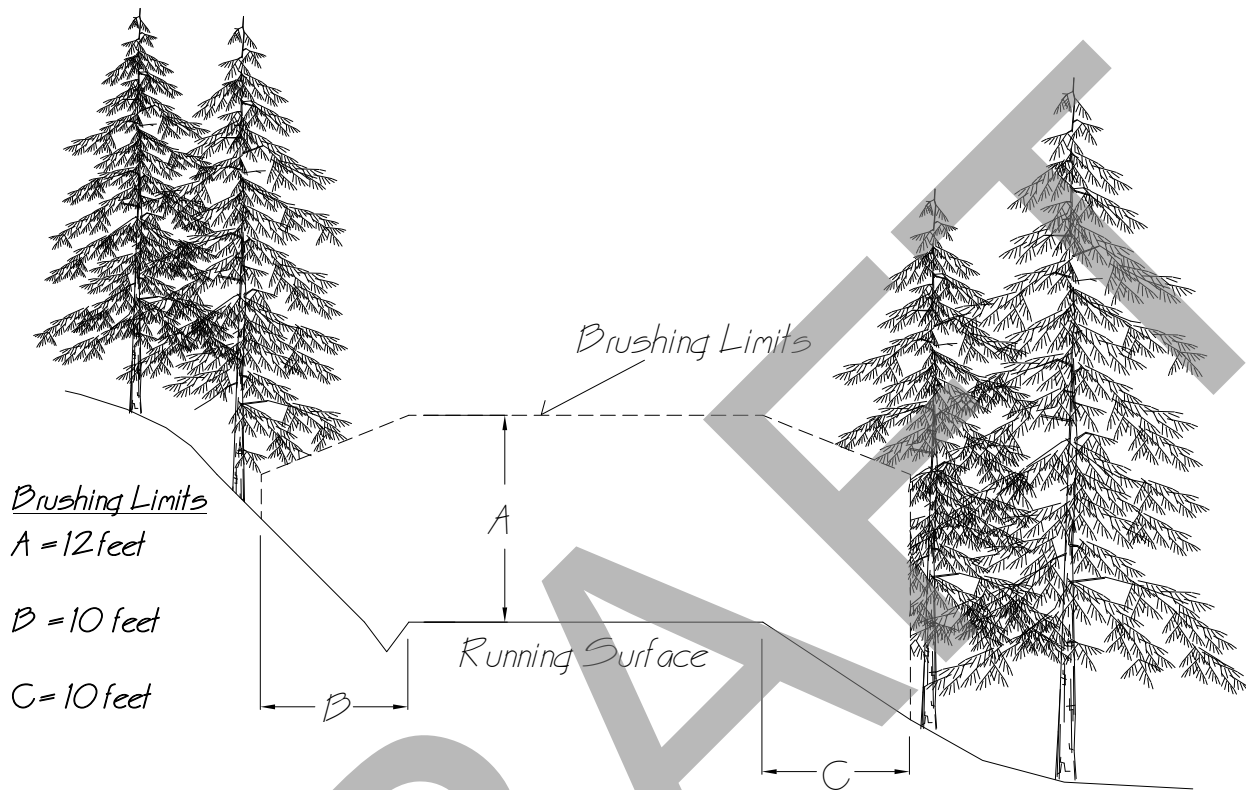
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

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



ROADSIDE BRUSHING DETAIL



GENERAL NOTES

- 1) Vegetative material, including limbs, up to 4 inches in diameter shall be cut within the brushing limits shown on the drawing above. This includes vegetative material growing on the running surface.
- 2) Vegetative material shall be cut as near flush with the ground as possible, but shall not extend more than 6 inches above the ground.
- 3) Brushing Limit C may be increased on the inside of curves to improve sight distance if approved by the Contract Administrator

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

JULES PIT DEVELOPMENT PLAN

Section 27, Township 14 North, Range 05 West, W.M.

Page 1 of 3

1. Development shall occur in Area A and proceed to Area B. Development in any other area must be approved in writing by Contract Administrator.
2. Rock exploration and/or similar will occur in the area shown on the map and as described in road plan clause 6-13.
3. All vegetation including stumps shall be cleared a minimum of 20 feet beyond the top of all working faces. Trees shall be cleared to a minimum of 3/4 of the height of the tallest tree adjacent to the pit.
4. Overburden shall be pushed or end hauled to the designated waste area and compacted. Minimal acceptable compaction is achieved by placing waste material in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts.
5. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in the designated waste area.
6. Pit faces shall not exceed 25 feet in height and shall be sloped no steeper than ¼:1.
7. Working bench width shall be a minimum of 20 feet.
8. The pit floor shall have continuity of slope, providing drainage to the north towards the L-3000 road at a minimum of 2 percent, unless otherwise approved in writing by Contract Administrator.
9. The location and amount of material to be placed in a stockpile are subject to approval of the Contract Administrator.
10. Oversize material remaining in the rock source at the conclusion of use shall not exceed 5 percent of the total volume mined during that operation. Oversize material is defined as rock fragments larger than two feet in any direction. At the conclusion of operations, oversize material shall be placed as directed by the Contract Administrator.

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

JULES PIT DEVELOPMENT PLAN

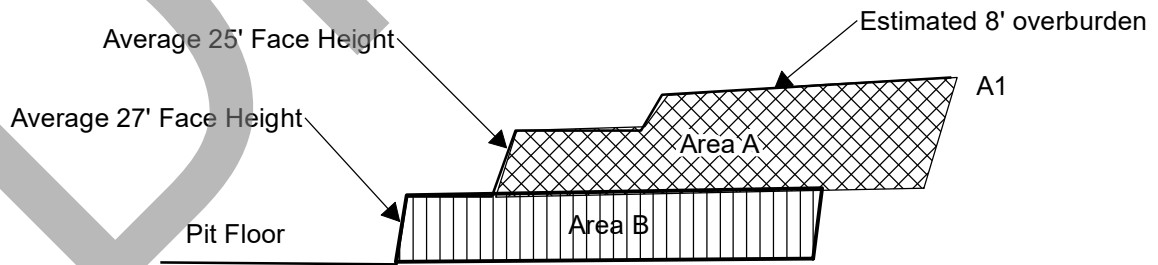
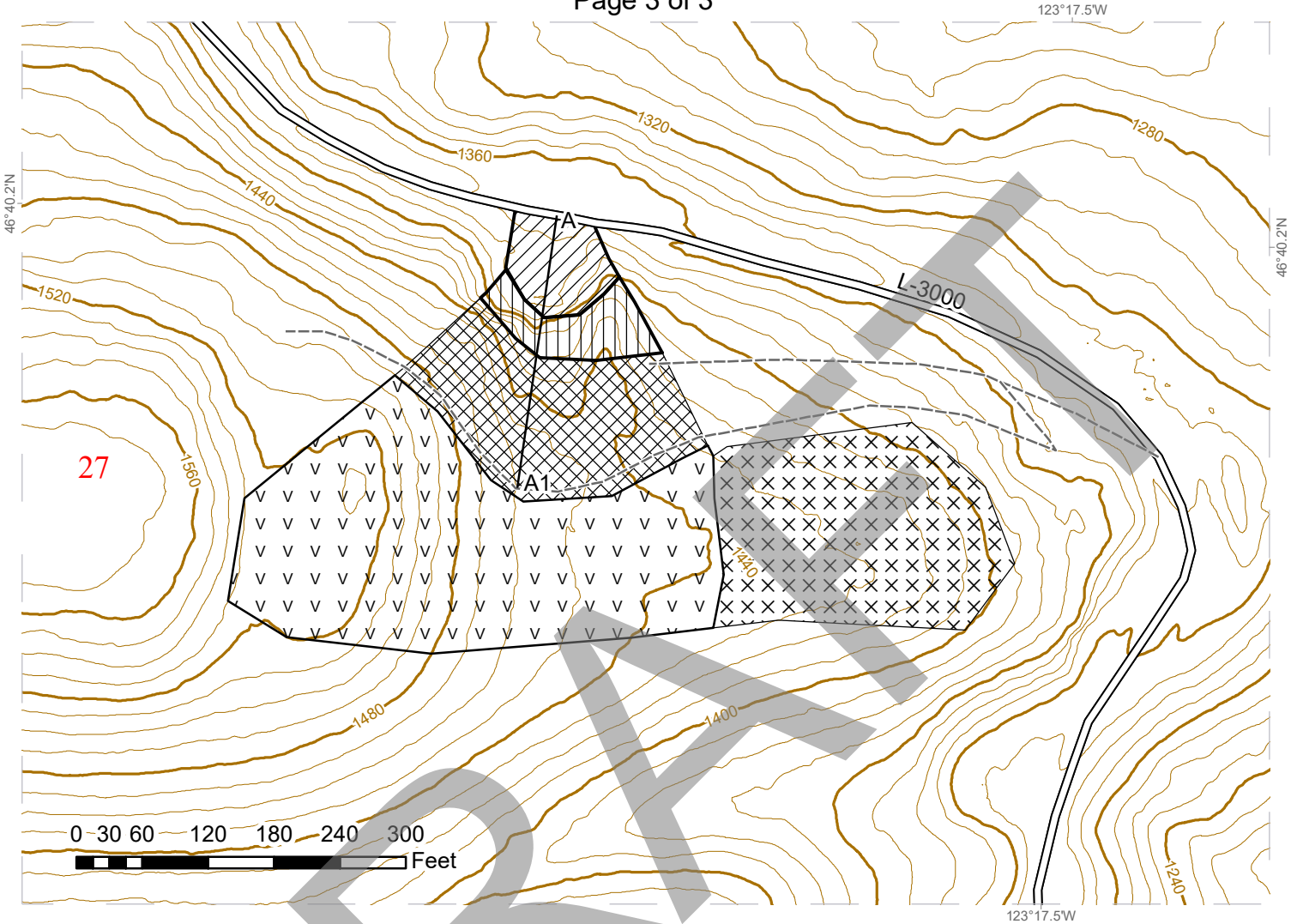
Section 27, Township 14 North, Range 5 West, W.M.

Page 2 of 3

11. All operations shall be carried out in compliance with all regulations of:
 - a. Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
 - b. Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
12. The Operator shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days prior to any drilling (Form # M-126PAC).
13. Upon completion of pit operations:
 - a. The pit floor shall be left in a smooth and neat condition. The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.
 - b. All exposed soil in the waste area shall be grass seeded in accordance with Road Plan Clauses 8-15 REVEGETATION and 8-25 GRASS SEED.
 - c. Pit faces and walls shall be scaled and cleared of loose and overhanging material.
 - d. Benches and faces shall have safety berms constructed or access blocked to highway vehicles.
 - e. The area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The site shall be cleared of all temporary structures, equipment and rubbish, and shall be left in a neat and presentable condition.
 - f. Prior to termination of the contract, quarry condition and compliance with all terms of the contract shall be approved in writing by the Contract Administrator.
14. Reclamation will not be required following use.

JULES PIT DEVELOPMENT PLAN

Sec.27, T14N, R5W, W.M.



Legend					
	Existing Roads		Pit Floor		Rock Exploration
	Old Grades/Trails		Area B		Waste Area
			Area AV		

Prepared By: rwal490

Modification Date: rwal490 8/24/2023

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

INFORMATIONAL BLASTING PLAN

Timber Sale/Project Name: _____ App./Project No.: _____

1. Blaster-in-Charge: Name: _____

Company: _____

Address: _____

Telephone: _____

2. Quarry Name/Location: _____

3. Total Estimated Cubic Yards in Blast (loose): _____

4. Hole Spacing: _____

5. Burden: _____

6. Hole Diameter: _____

7. Hole Depth: _____

8. Sub Drill: _____

9. Number of Holes: _____

10. Stemming Depth: _____

11. Explosive (mfg., name, density, %, V.O.D.): _____

12. Type and Size of Primer (if applicable): _____

13. Total Weight of Primers for Shot: _____

14. Calculated Powder Factor/Cubic Yard: _____

15. Number of Delays (in M.S.): _____

M-126PAC (03/04)

INFORMATIONAL BLASTING PLAN

Page 2 of 3

16. Number of Holes Fired on Each Delay: _____

17. Total Amount of Explosives Fired on Each Delay: _____

18. Type of Blasting Machine: _____

19. Date, Start Drilling: _____

20. Date and Time, Start Loading: _____

21. Date and Time of Blast (approx.): _____

DRAFT

INFORMATIONAL BLASTING PLAN

Page 3 of 3

22. Detail drawing of delay system (show hole pattern and delays in milliseconds). Attach additional sheets if required:

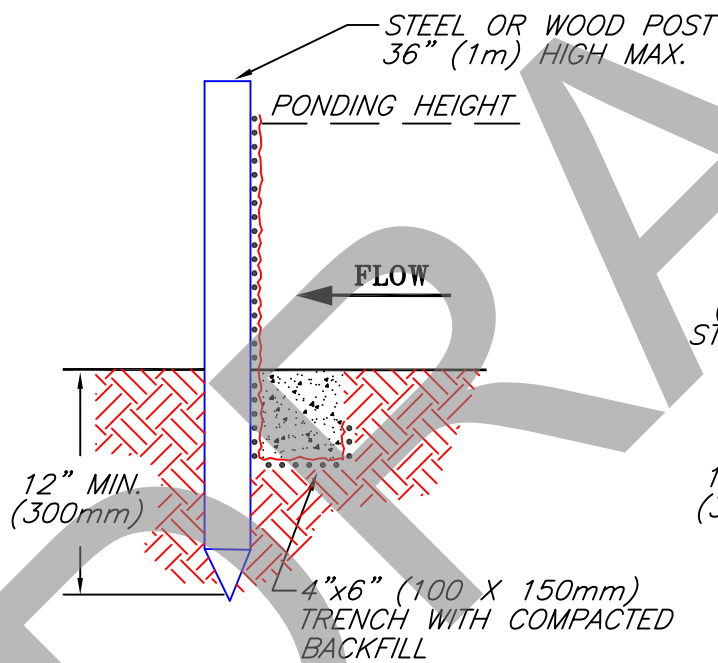
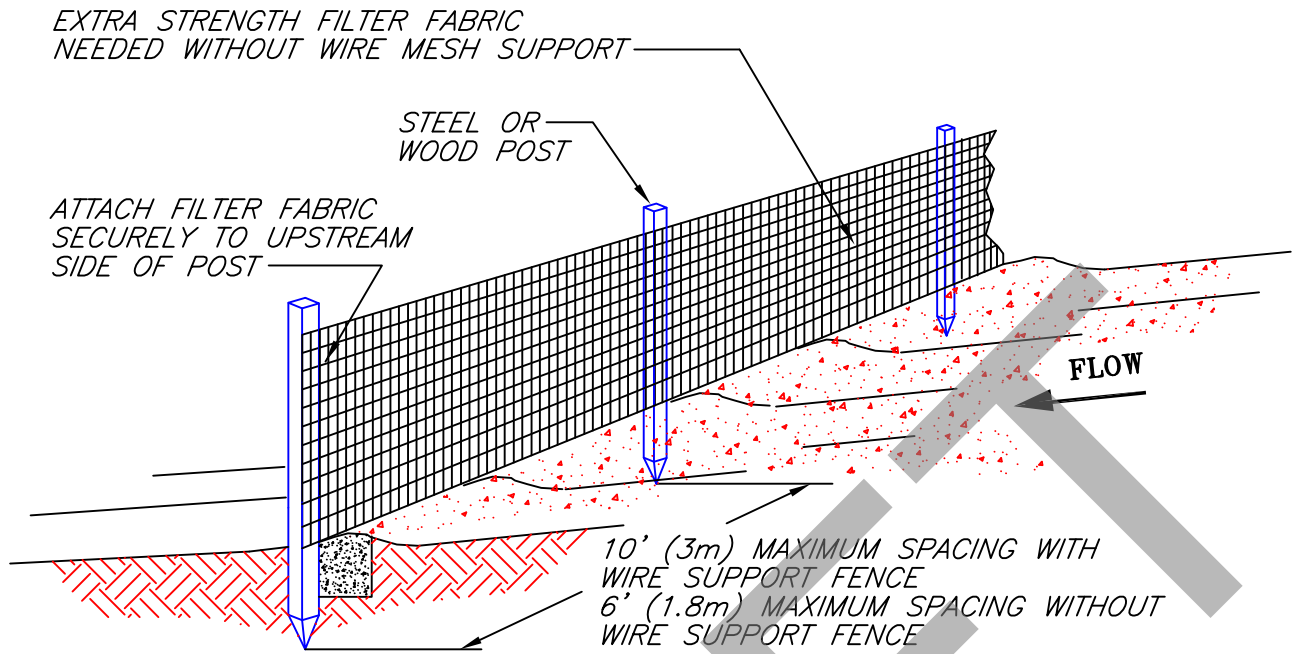
23. Typical cross-section of hole (show primer, main charge, sub drill, and stemming):

23. Submitted by: _____ Date: _____

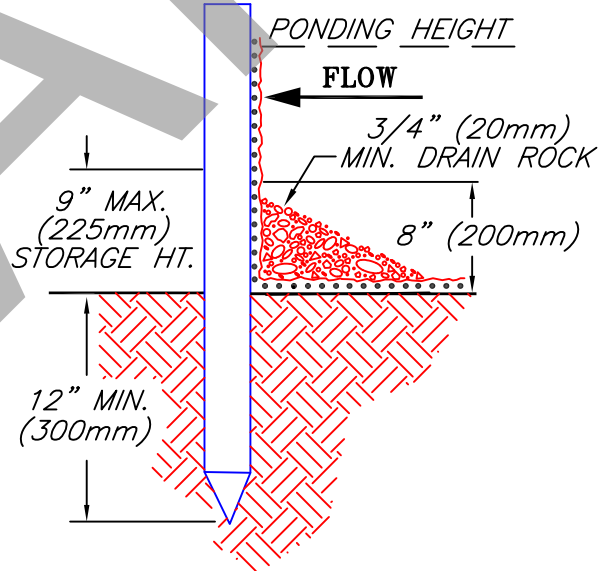
24. Received by: _____ Date: _____

Note: Attach copies of manufacturer=s data sheet(s) for explosive and caps.

M-126PAC (03/04)



TRENCH DETAIL



INSTALLATION WITHOUT TRENCHING

NOTES:

1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

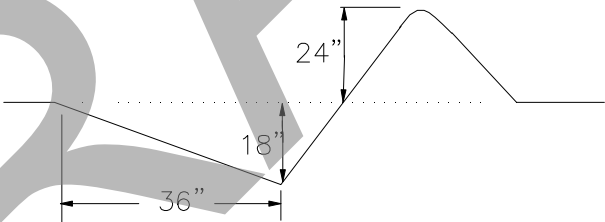
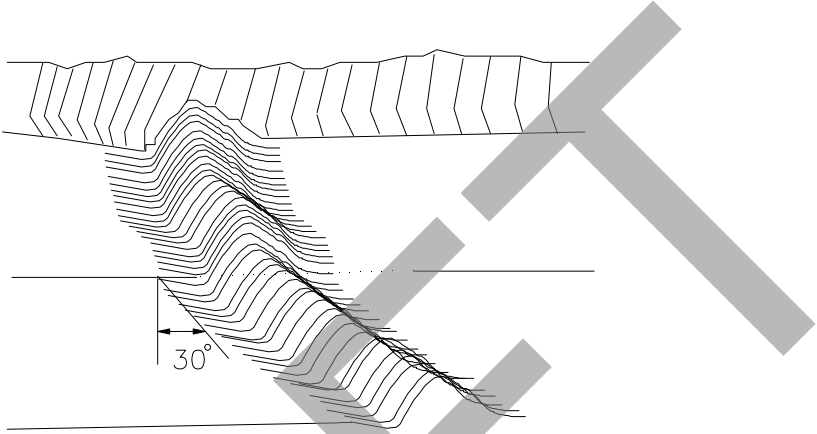
NOT TO SCALE

SILT FENCE

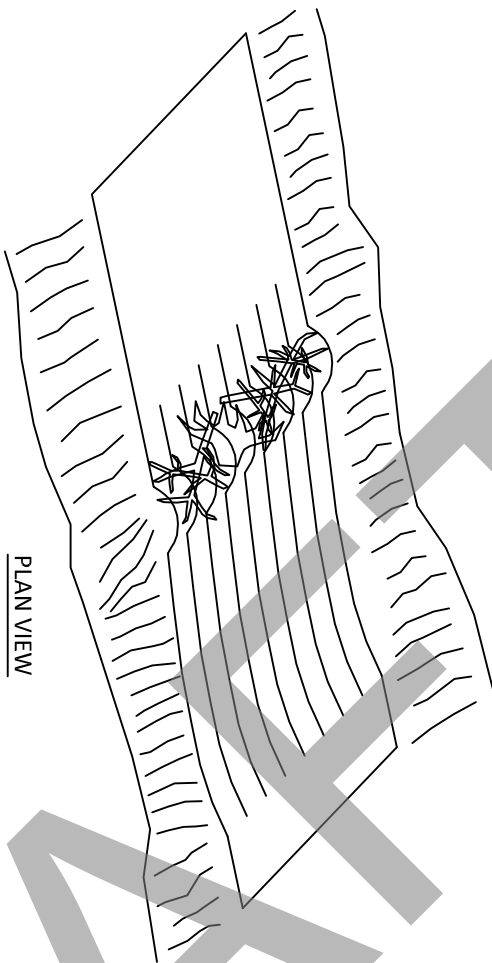
© 1994 JOHN McCULLAH

FILE: SILTFENC

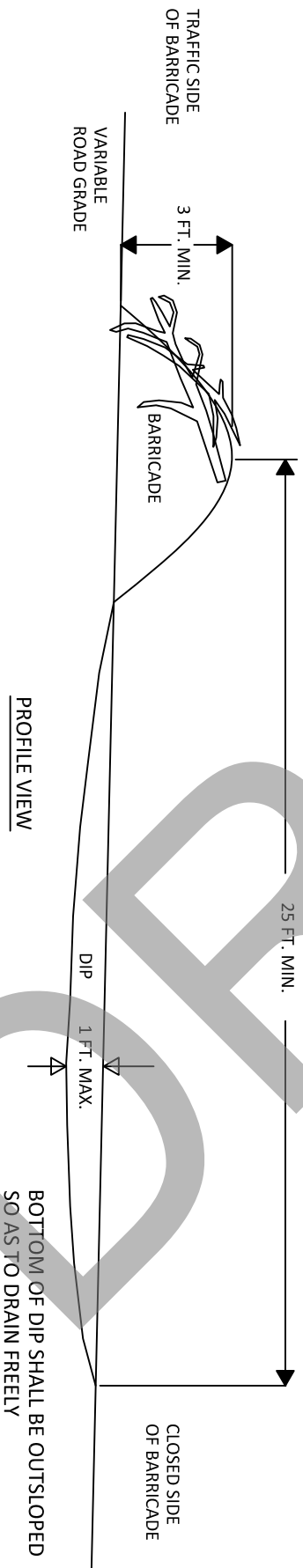
NON-DRIVABLE WATER BAR DETAIL

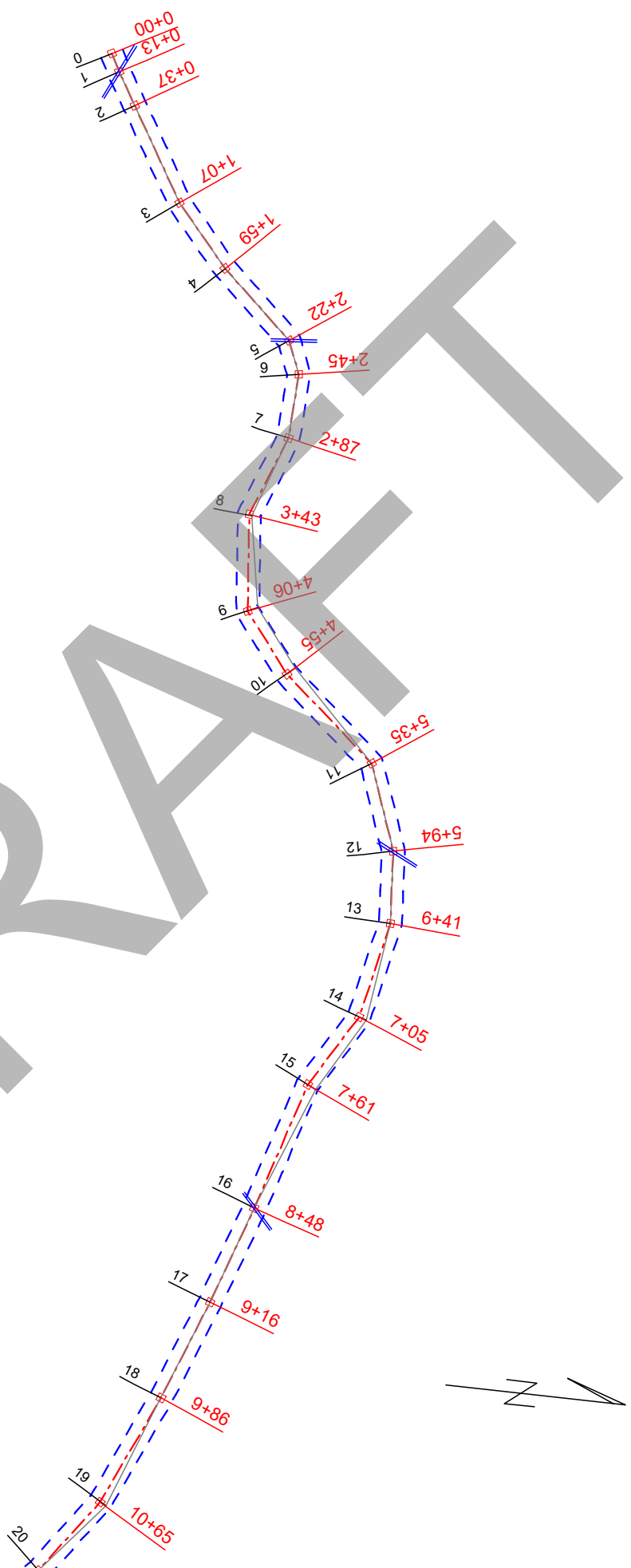


EARTHEN BARRICADE DETAIL

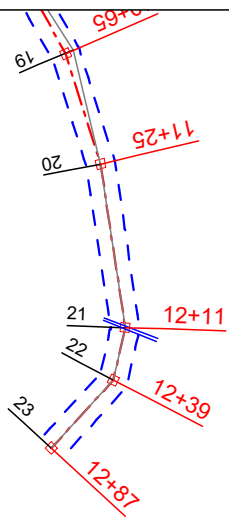


SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.

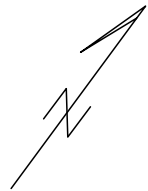




DRAFT



DRAFT



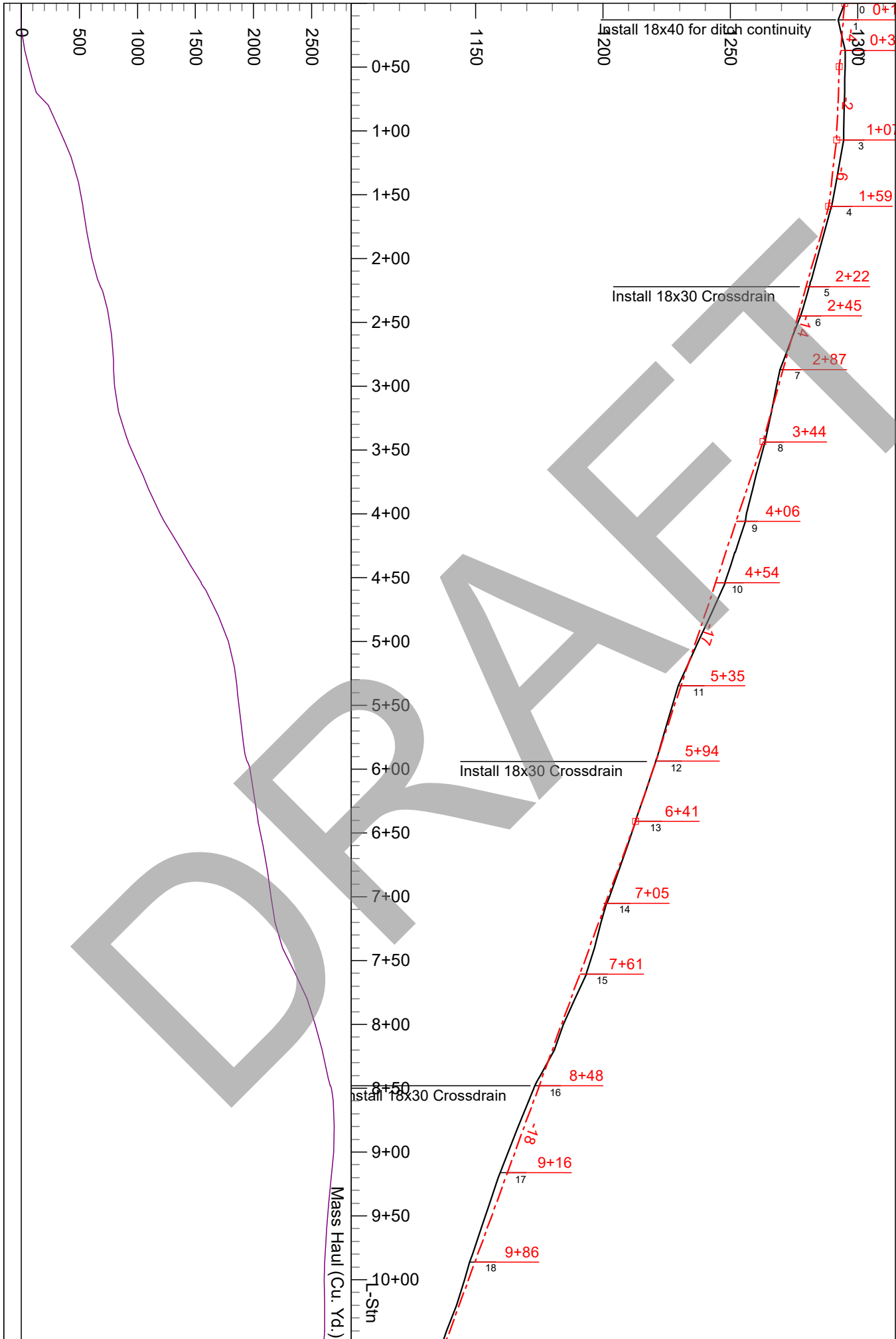
Grade %

Assumed expansion factors

Cut: 1.3 Fill: 0.8

*All volumes are estimates.

Existing Topography



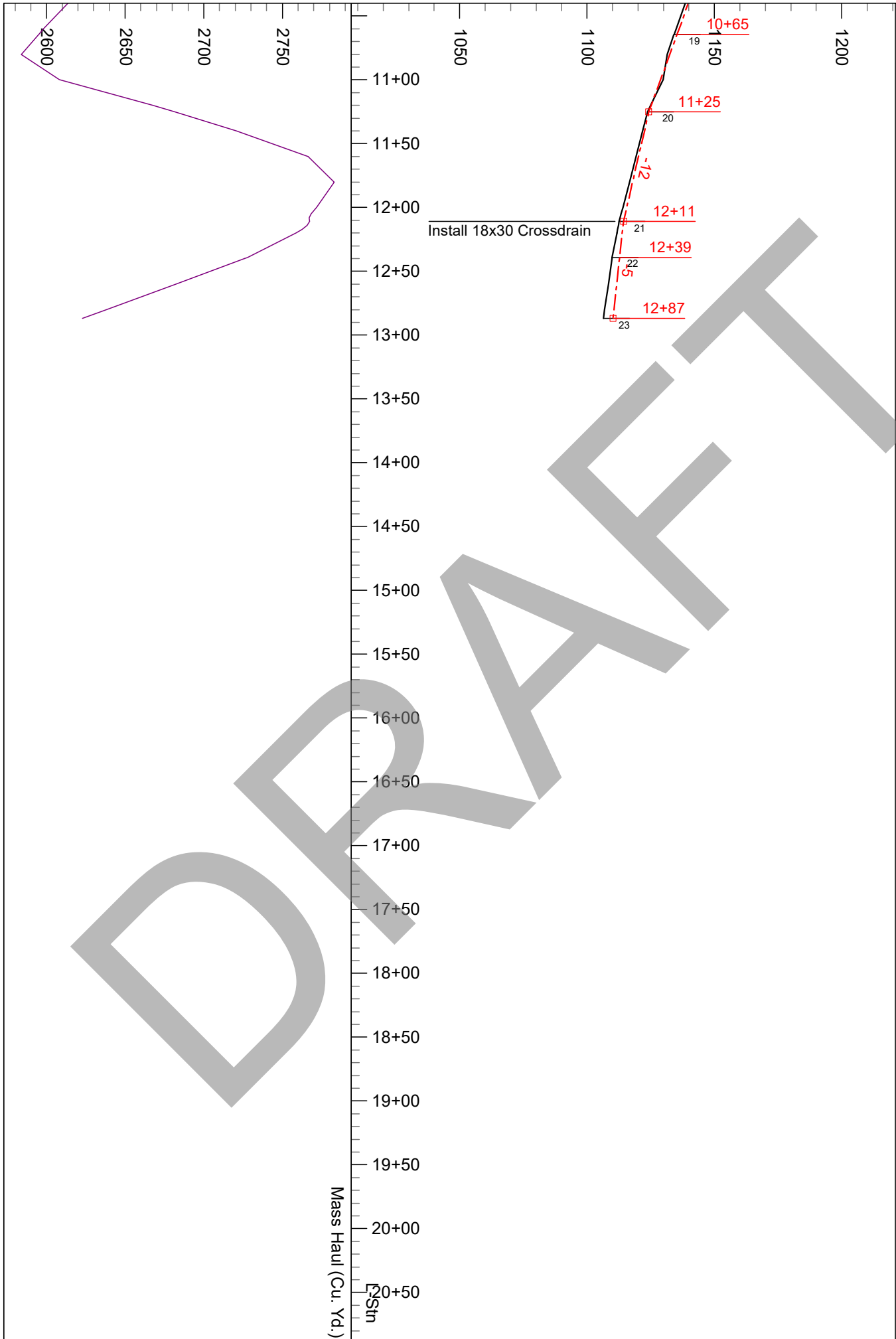
Grade %

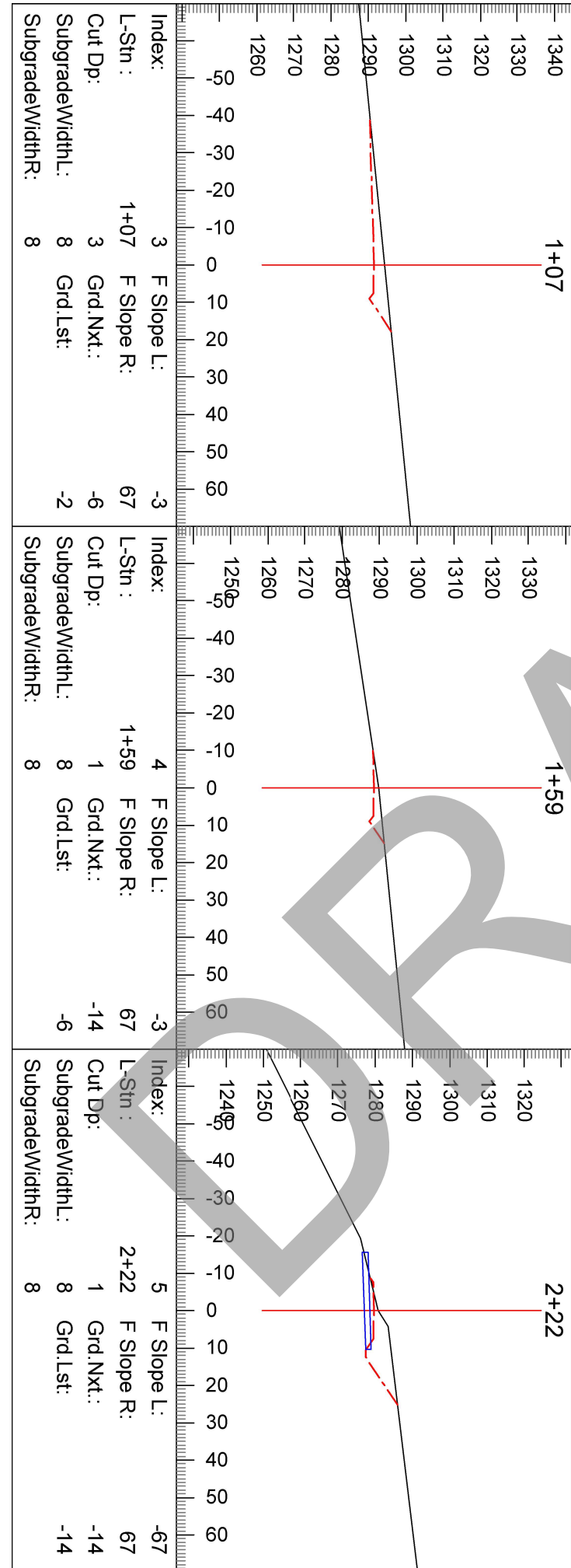
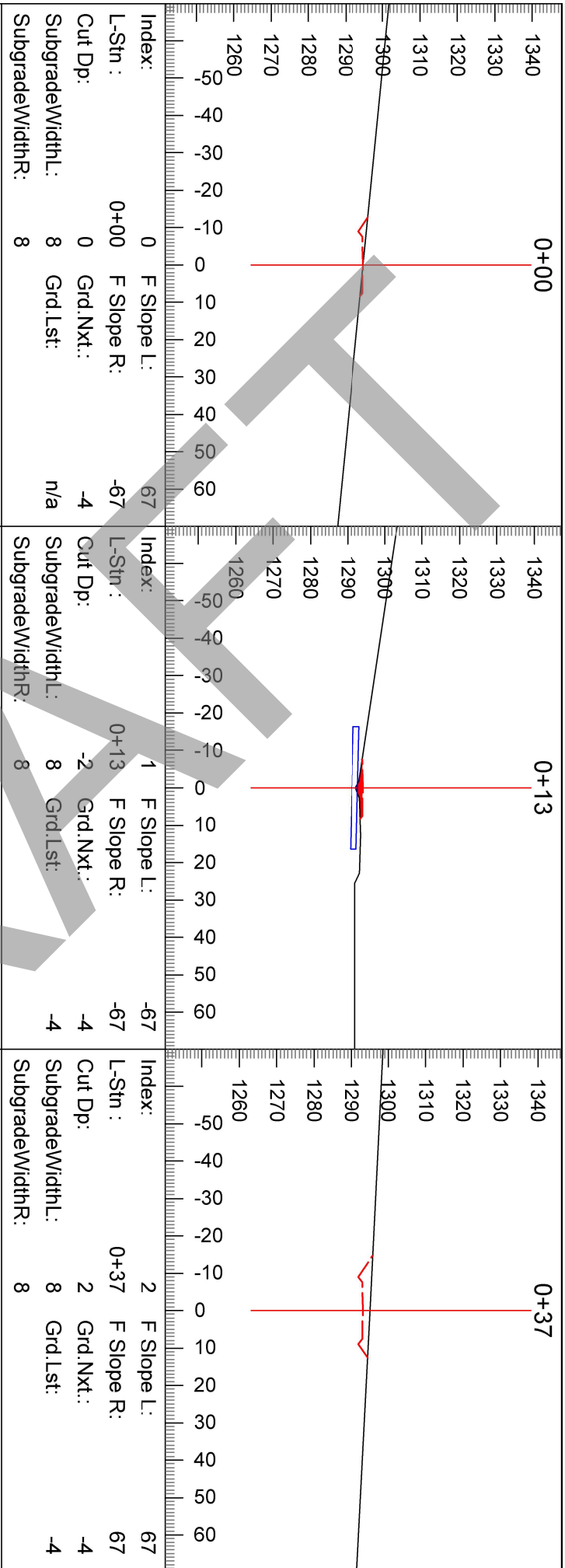
Assumed expansion factors

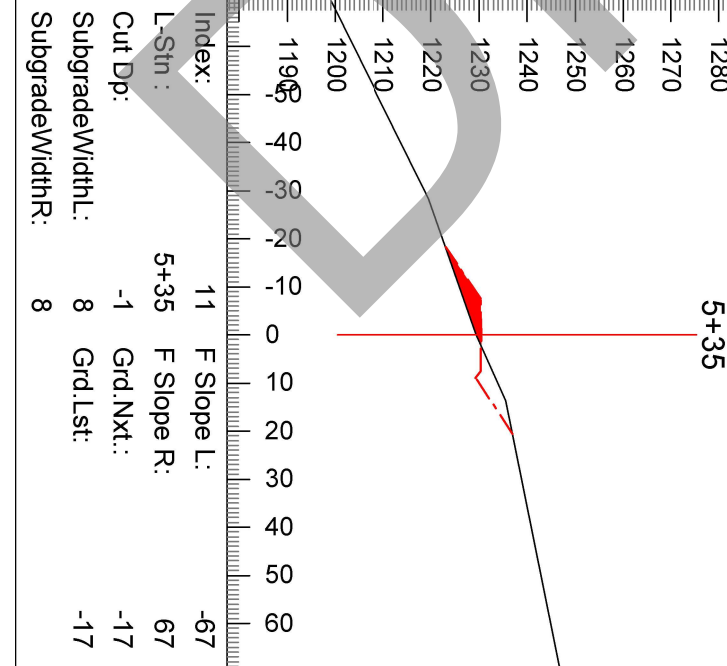
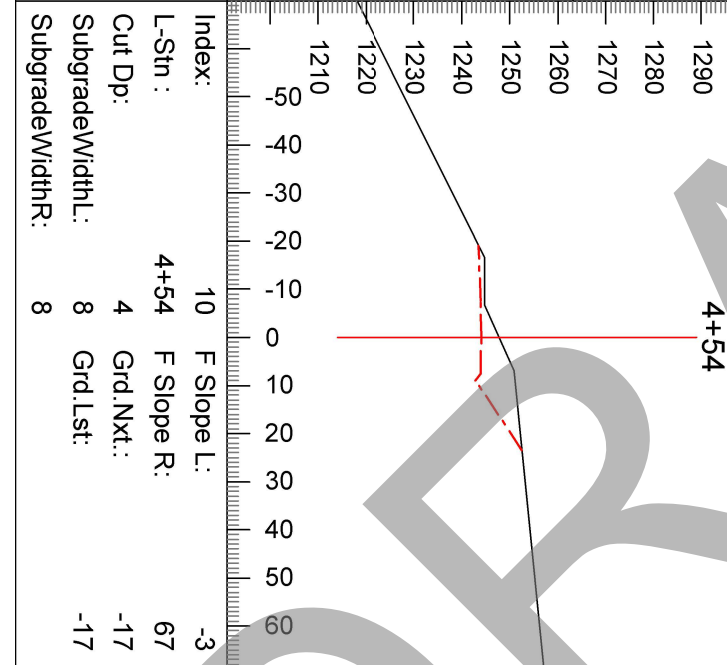
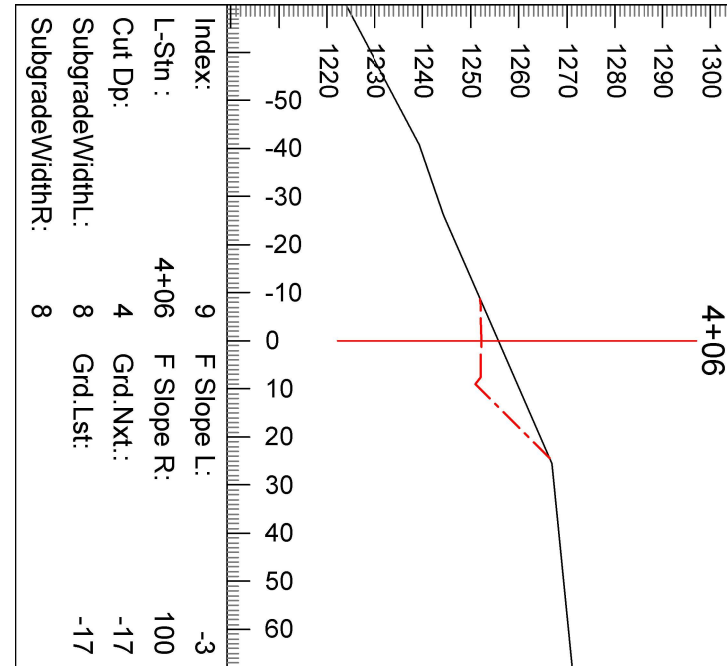
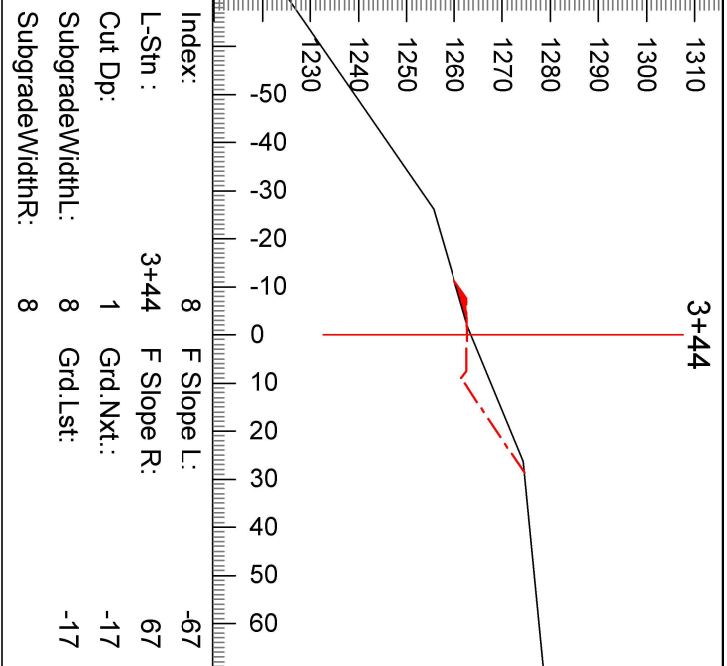
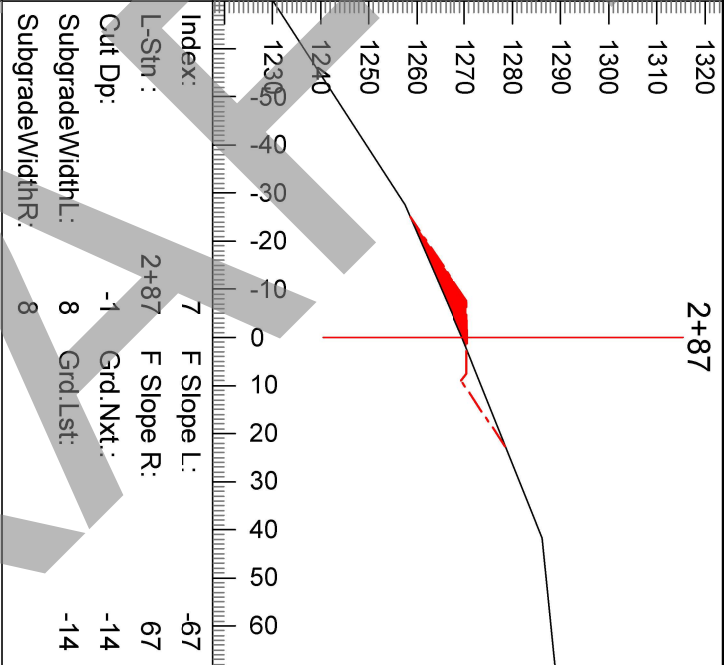
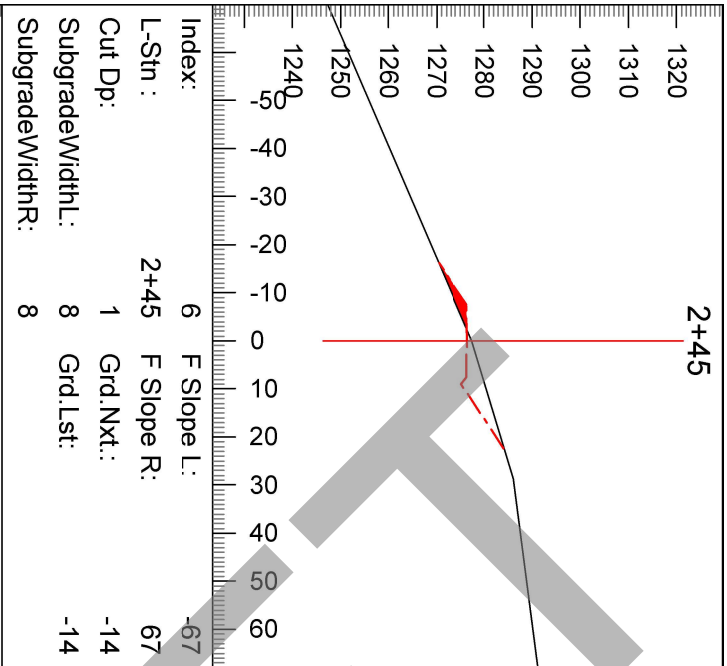
Cut: 1.3 Fill: 0.8

*All volumes are estimates.

Existing Topography



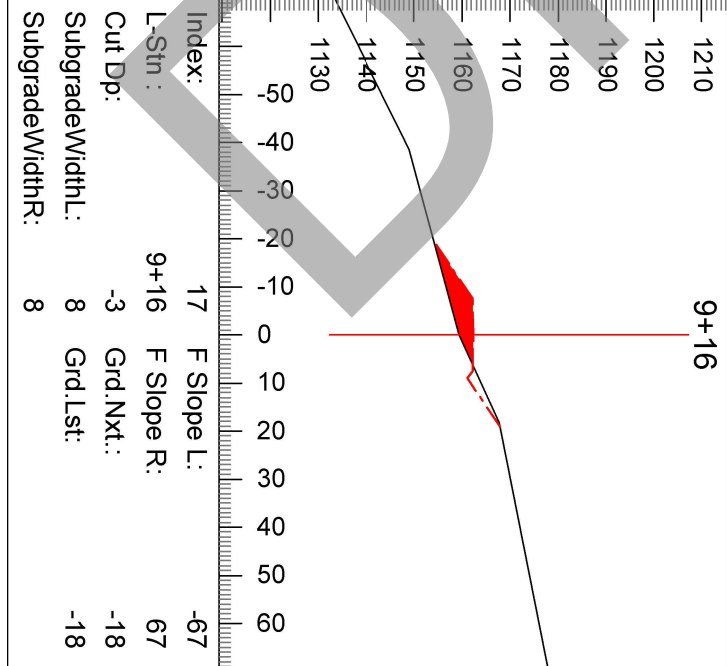
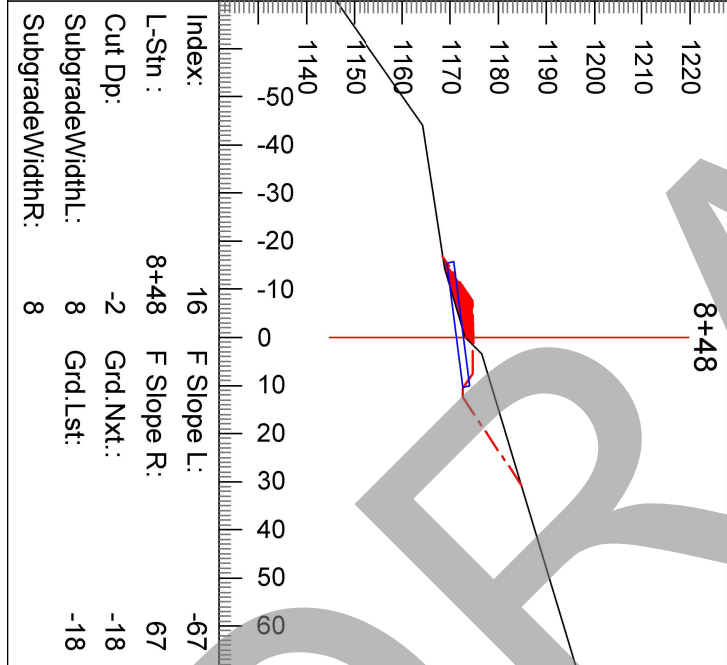
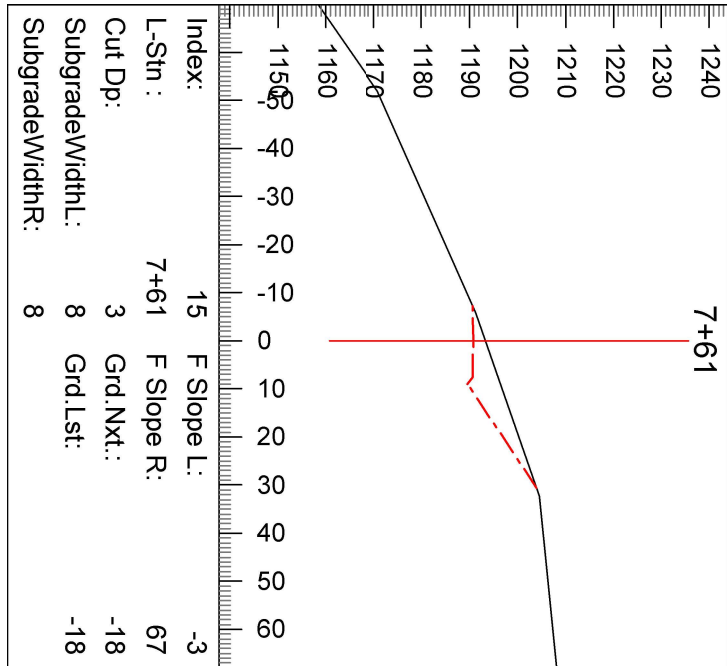
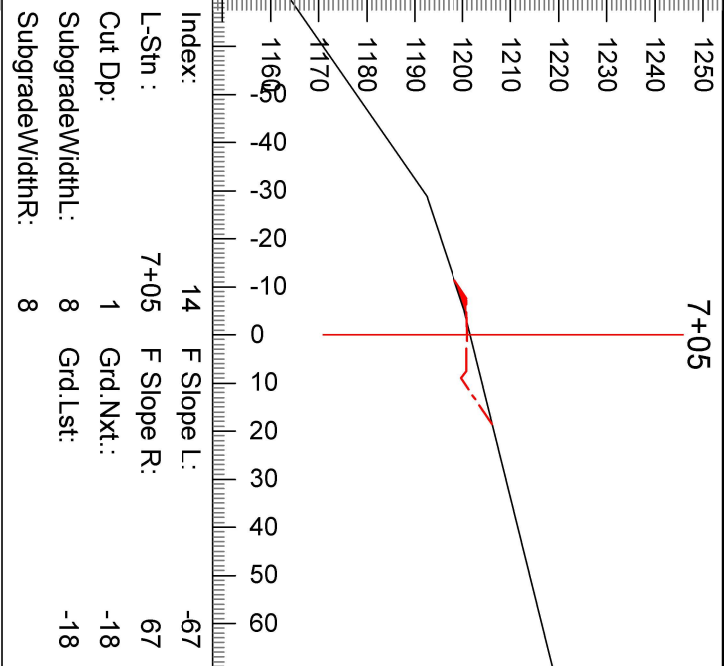
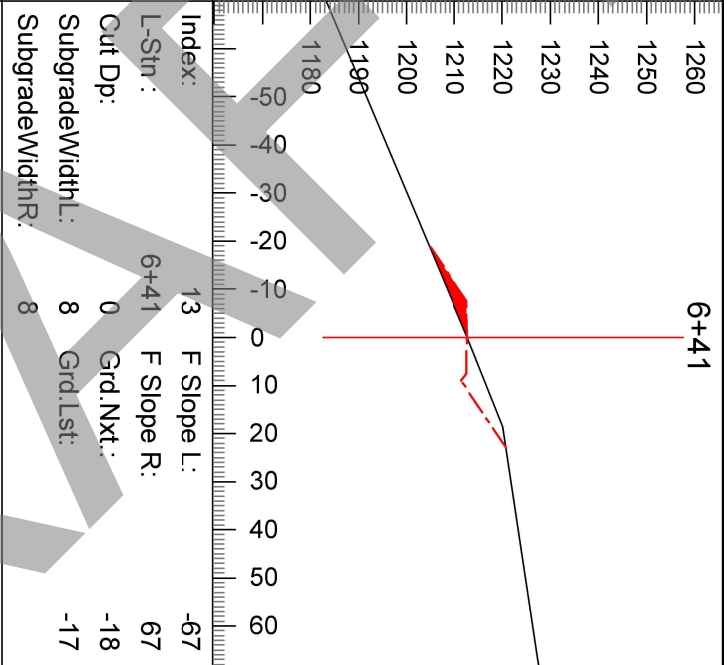
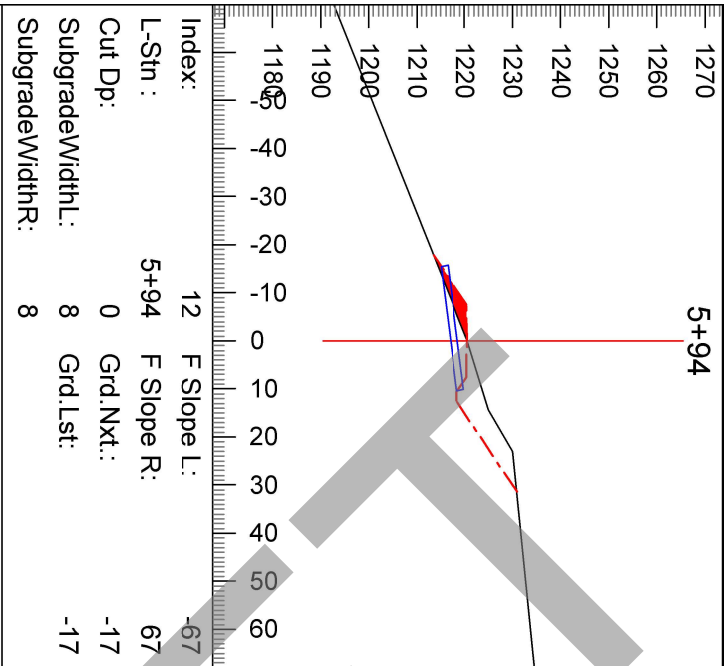




Index:	9	F Slope L:	-3
L-Stn :	4+06	F Slope R:	100
Cut Dp:	4	Grd.Nxt.:	-17
SubgradeWidthL:	8	Grd.Lst.:	-17
SubgradeWidthR:	8		

Index:	10	F Slope L:	-3
L-Stn :	4+54	F Slope R:	67
Cut Dp:	4	Grd.Nxt.:	-17
SubgradeWidthL:	8	Grd.Lst.:	-17
SubgradeWidthR:	8		

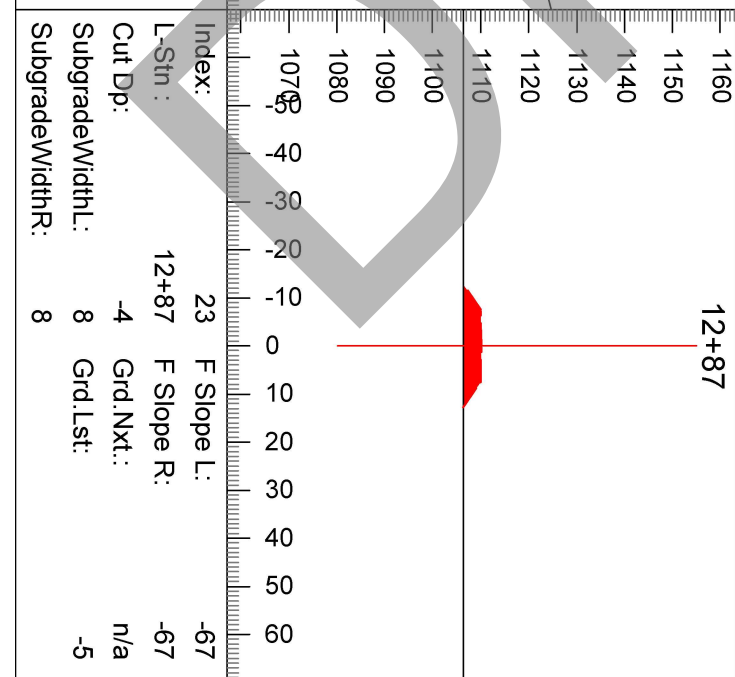
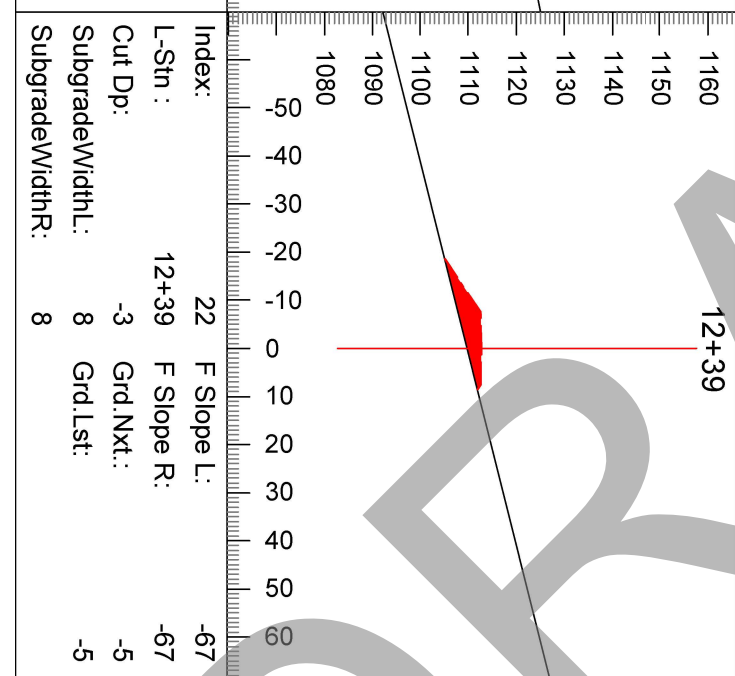
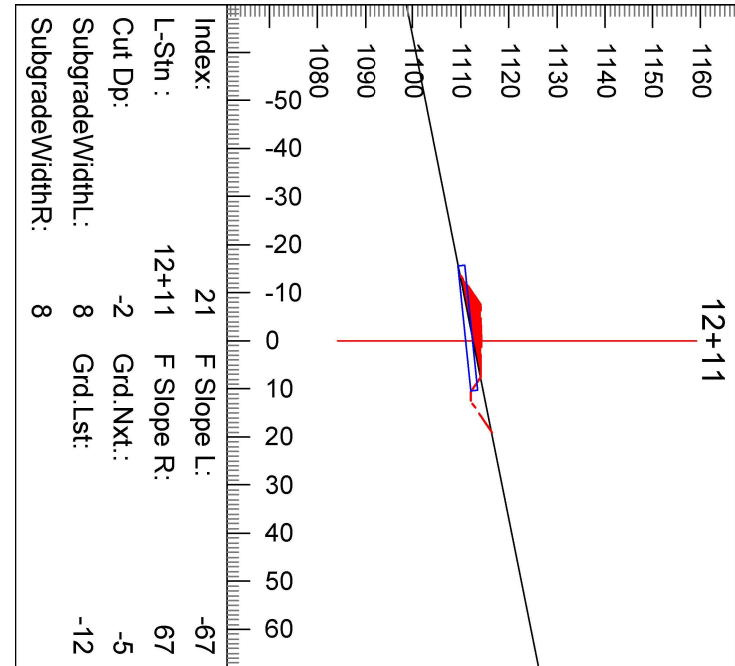
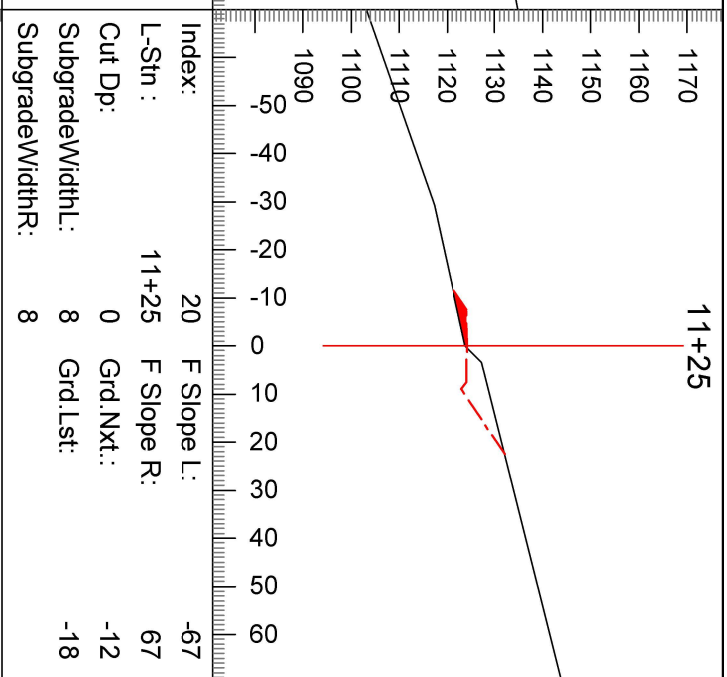
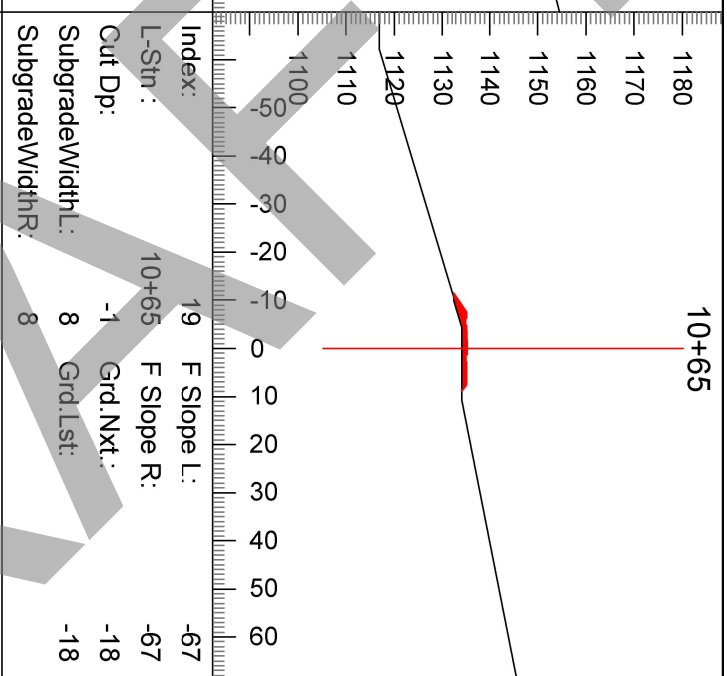
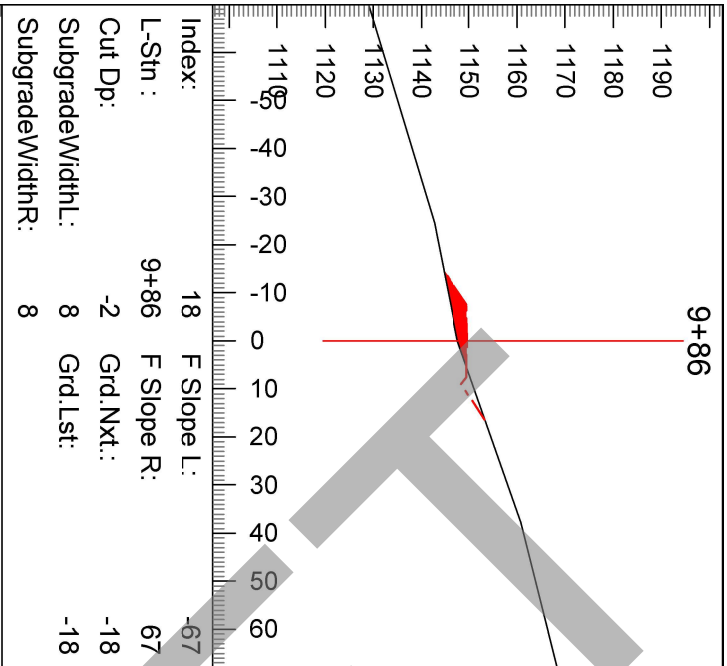
Index:	11	F Slope L:	-67
L-Stn :	5+35	F Slope R:	67
Cut Dp:	-1	Grd.Nxt.:	-17
SubgradeWidthL:	8	Grd.Lst.:	-17
SubgradeWidthR:	8		



Index:	15	F Slope L:	-3
L-Stn :	7+61	F Slope R:	67
Cut Dp:	3	Grd.Nxt.:	-18
SubgradeWidthL:	8	Grd.Lst.:	-18
SubgradeWidthR:	8		

Index:	16	F Slope L:	-67
L-Stn :	8+48	F Slope R:	67
Cut Dp:	-2	Grd.Nxt.:	-18
SubgradeWidthL:	8	Grd.Lst.:	-18
SubgradeWidthR:	8		

Index:	17	F Slope L:	-67
L-Stn :	9+16	F Slope R:	67
Cut Dp:	-3	Grd.Nxt.:	-18
SubgradeWidthL:	8	Grd.Lst.:	-18
SubgradeWidthR:	8		



Index: 18 F Slope L: -67
L-Stn: 9+86 F Slope R: 67
Cut Dp: -2 Grd.Nxt.: -18
SubgradeWidthL: 8 Grd.Lst: -18
SubgradeWidthR: 8

Index: 19 F Slope L: -67
L-Stn: 10+65 F Slope R: -67
Cut Dp: -1 Grd.Nxt.: -18
SubgradeWidthL: 8 Grd.Lst: -18
SubgradeWidthR: 8

Index: 20 F Slope L: -67
L-Stn: 11+25 F Slope R: 67
Cut Dp: 0 Grd.Nxt.: -12
SubgradeWidthL: 8 Grd.Lst: -18
SubgradeWidthR: 8

Index: 21 F Slope L: -67
L-Stn: 12+11 F Slope R: 67
Cut Dp: -2 Grd.Nxt.: -5
SubgradeWidthL: 8 Grd.Lst: -12
SubgradeWidthR: 8

Index: 22 F Slope L: -67
L-Stn: 12+39 F Slope R: -67
Cut Dp: -3 Grd.Nxt.: -5
SubgradeWidthL: 8 Grd.Lst: -5
SubgradeWidthR: 8

Index: 23 F Slope L: -67
L-Stn: 12+87 F Slope R: -67
Cut Dp: -4 Grd.Nxt.: n/a
SubgradeWidthL: 8 Grd.Lst: -5
SubgradeWidthR: 8

SUMMARY - Road Development Costs

REGION: Pacific Cascade

DISTRICT: Lewis

SALE/PROJECT NAME: Richmond Fire Salvage

AGREEMENT #: 30-106277

ROAD NUMBERS:	Optional: L-3025-G, L-3025-H, L-3025-I	L-3025-B	
	Required:		L-3000, L-3025
ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	28.40	2.20	289.65
CLEARING & GRUBBING, EXCAVATION AND FILL, MISC.:	\$23,247.63	\$703.20	\$12,382.02
ROAD ROCK:			
	Optional:	\$0.00	\$0.00
	Required:	\$38,065.60	\$3,481.72
	Total:	\$38,065.60	\$3,481.72
STOCKPILE:	-	-	\$0.00
CULVERTS AND FLUMES:	\$9,760.00	\$0.00	\$915.00
STRUCTURES:	-	-	-
MOBILIZATION:	\$7,855.81	\$237.62	\$4,184.12
TOTAL COSTS:	\$78,929.04	\$4,422.54	\$18,825.71
COST PER STATION:	\$2,779	\$2,010	\$65
ROAD DEACTIVATION & ABANDONMENT COSTS:	\$1,826.86	\$0.00	\$0

10% OVERHEAD AND GENERAL EXPENSE =	\$10,217.73
TOTAL (All Roads) =	\$114,221.88
TOTAL (Minus Optional Rock) =	\$114,221.88
SALE VOLUME MBF =	3,887
TOTAL \$/MBF =	\$29.39
TOTAL \$/MBF (Minus Optional Rock) =	\$29.39

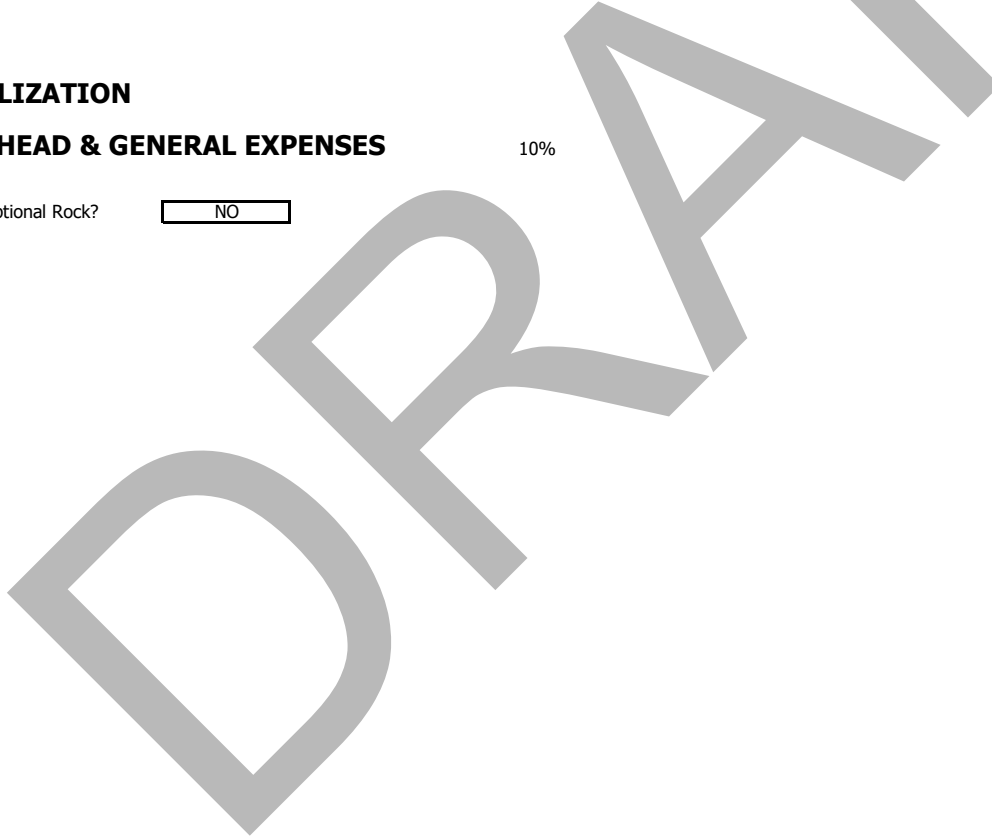
Profit and Risk costs are accounted on an individual basis.

SUMMARY OF ROAD

Sale:	Richmond Fire Salvage		Road: L-3000
Required Pre-Haul Maintenance-	226+35 4.29	stations miles	Required Reconstruction -
	0+00 0.00	stations miles	Optional Reconstruction -
Required Abandonment-	0+00 0.00	stations miles	Required Construction -
	0+00 0.00	stations miles	Optional Construction -

PRE-HAUL MAINTENANCE

CLEARING							
Roadside Brushing	0.09	miles @	\$1,170.00	per mile =	\$105.30		
EXCAVATION							
Construct ditchouts - 71+50	1.00	@	\$71.67	each	\$71.67		
Reconstruct ditch -	4.70	stations @	\$215.00	per station	\$1,010.50		
MISC.							
Grade and shape existing road surface -	226.35	stations @	\$18.25	per station	\$4,130.89		
Roll shaped road surface w/ vibratory roller prior to rocking -	226.35	stations @	\$9.70	per station	\$2,195.60		
Remove and Replace Sediment Fence - 20+25 to 22+25	2.00	stations @	\$42.11	per station	\$84.22		
			TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.			\$7,598.18	
ROCK							
20+75 to	21+75	30 cy. of	Crushed	@	\$19.36	per c.y.=	\$580.80
Spot Rock	198+30	20 cy. of	Crushed	@	\$14.66	per c.y.=	\$293.20
Energy Dissipator	198+30	1 cy. of	Quarry Spalls	@	\$23.66	per c.y.=	\$23.66
			TOTAL ROCK			\$897.66	
						SUBTOTAL	\$8,495.84
MOBILIZATION						SUBTOTAL	\$2,567.57
OVERHEAD & GENERAL EXPENSES				10%		SUBTOTAL	\$1,106.34
Optional Rock?	NO					TOTAL	\$12,169.75
						COST PER STATION	\$53.77



SUMMARY OF ROAD

Sale:	Richmond Fire Salvage		Road: L-3025								
Required Pre-Haul Maintenance-	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">63+30</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">1.20</td> <td style="text-align: right;">miles</td> </tr> </table>	63+30	stations	1.20	miles	Required Reconstruction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles
63+30	stations										
1.20	miles										
0+00	stations										
0.00	miles										
Required Abandonment-	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles	Optional Reconstruction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles
0+00	stations										
0.00	miles										
0+00	stations										
0.00	miles										
		Required Construction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles				
0+00	stations										
0.00	miles										
		Optional Construction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles				
0+00	stations										
0.00	miles										

PRE-HAUL MAINTENANCE

CLEARING						
Roadside Brushing	0.47	miles @	\$1,170.00	per mile =	\$549.90	
EXCAVATION						
Pull and clean ditch-	7.80	stations @	\$67.19	per station	\$524.08	
Reconstruct ditch -	8.15	stations @	\$215.00	per station	\$1,752.25	
Clean culvert inlet and outlet -	1.00	@	\$53.75	per culvert	\$53.75	
MISC.						
Grade and shape existing road surface -	63.30	stations @	\$18.25	per station	\$1,155.23	
Roll shaped road surface w/ vibratory roller prior to rocking -	63.30	stations @	\$9.70	per station	\$614.01	
Reconstruct turnaround @ sta. 28+75 -	1.00	@	\$134.62	each	\$134.62	
			TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		\$4,783.84	

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>						
30	LF of 18"	\$915.00	0	LF of 24"	\$0.00	
		\$915.00			\$0.00	
<u>Half Rounds</u>						
0	LF of 24"	\$0.00	0	LF of 30"	\$0.00	
		\$0.00			\$0.00	
<u>Culvert Stakes & Markers</u>						
0	stakes	\$0.00				
0	markers	\$0.00				
		\$0.00				
			TOTAL CULVERTS		\$915.00	

ROCK						
Spot Rock	36+30	25	cy. of	Crushed	\$17.09	per c.y. = \$427.25
Energy Dissipator	18+70	1	cy. of	Pit-Run	\$19.66	per c.y. = \$19.66
						TOTAL ROCK
						\$446.91

MOBILIZATION

SUBTOTAL **\$1,616.55**

OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$776.23**

TOTAL **\$8,538.53**

Optional Rock? NO

COST PER STATION **\$134.89**

SUMMARY OF ROAD

Sale:	Richmond Fire Salvage		Road: L-3025-B
Required Pre-Haul Maintenance-	0+00 <hr style="width: 50%; margin: 0 auto;"/> 0.00	stations miles	Required Reconstruction -
			0+00 <hr style="width: 50%; margin: 0 auto;"/> 0.00
			stations miles
Required Abandonment-	0+00 <hr style="width: 50%; margin: 0 auto;"/> 0.00	stations miles	Optional Reconstruction -
			2+20 <hr style="width: 50%; margin: 0 auto;"/> 0.04
			stations miles
			Required Construction -
			0+00 <hr style="width: 50%; margin: 0 auto;"/> 0.00
			stations miles
			Optional Construction -
			0+00 <hr style="width: 50%; margin: 0 auto;"/> 0.00
			stations miles

RECONSTRUCTION

CLEARING/GRUBBING

Scattering Organic Debris 2.20 sta @ \$140.00 per sta \$308.00

EXCAVATION

Pull and clean ditch- 1.00 stations @ \$67.19 per station \$67.19
Grade and shape subgrade - 2.20 stations @ \$14.60 per station \$32.12

MISC.

Roll subgrade w/ vibratory roller prior to rocking - 2.20 stations @ \$12.12 per station \$26.66
Reconstruct landing - 1.00 @ \$269.23 each \$269.23

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$703.20**

ROCK

0+00 to 2+20 193 cy. of Pit Run @ \$18.04 per c.y. = \$3,481.72

TOTAL ROCK **\$3,481.72**

SUBTOTAL **\$4,184.92**

MOBILIZATION

SUBTOTAL **\$237.62**

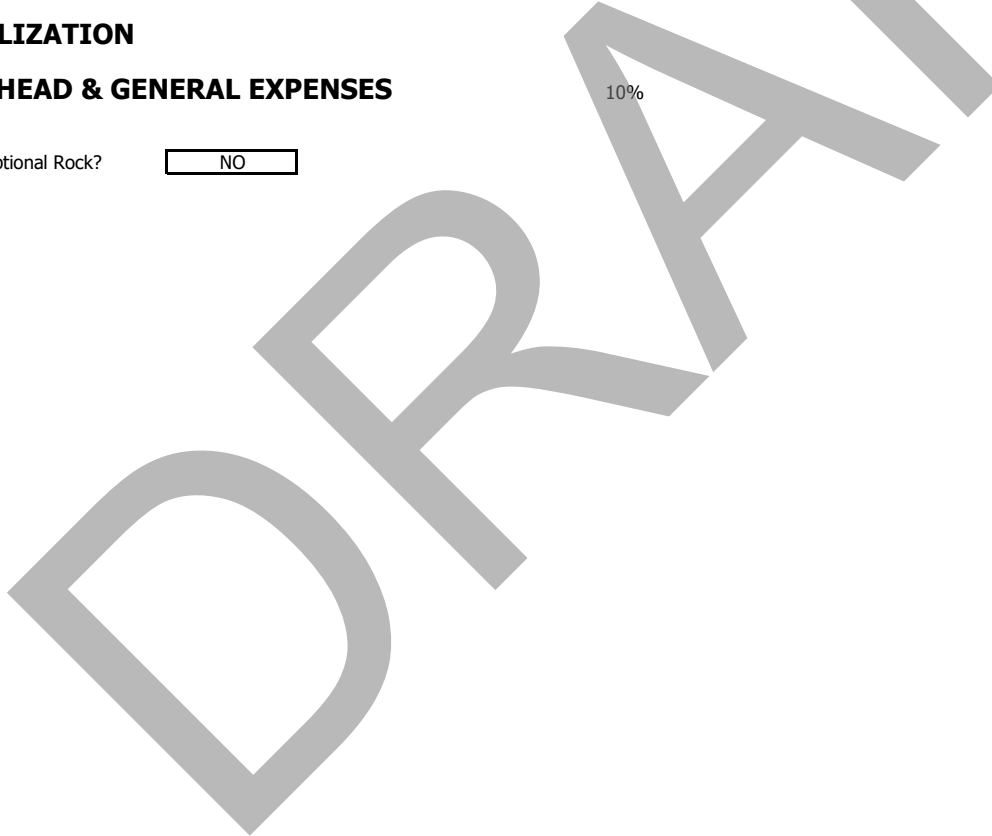
OVERHEAD & GENERAL EXPENSES

SUBTOTAL **\$442.25**

TOTAL \$4,864.79

Optional Rock? NO

COST PER STATION 2211.268182



SUMMARY OF ROAD

Sale:	Richmond Fire Salvage	Road:	L-3025-G					
Required Pre-Haul Maintenance-	0+00 0.00	stations miles	Required Reconstruction -	0+00 0.00	stations miles	Required Construction -	0+00 0.00	stations miles
Required Abandonment-	0+00 0.00	stations miles	Optional Reconstruction -	0+00 0.00	stations miles	Optional Construction -	6+41 0.12	stations miles

CONSTRUCTION

CLEARING/GRUBBING

Scattering Organic Debris	6.41	sta @	\$280.00	per sta	\$1,794.80
Remove large stumps -	3.00	@	\$350.00	each	\$1,050.00

EXCAVATION

Road Construction Earthwork	6.41	sta @	\$152.17	per sta. =	\$975.41
Grade and shape subgrade -	6.41	stations @	\$14.60	per station	\$93.59

MISC.

Roll subgrade w/ vibratory roller prior to rocking -	6.41	stations @	\$12.12	per station	\$77.69
Construct turnaround @ sta. -	1.00	@	\$134.62	each	\$134.62
Construct landing -	1.00	@	\$538.46	each	\$538.46

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. \$4,664.57

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>					
60	LF of 18"	\$1,830.00	0	LF of 24"	\$0.00
		\$1,830.00			\$0.00
<u>Half Rounds</u>					
0	LF of 24"	\$0.00	0	LF of 30"	\$0.00
		\$0.00			\$0.00
<u>Culvert Stakes & Markers</u>					
0	stakes	\$0.00			
0	markers	\$0.00			
		\$0.00			
TOTAL CULVERTS					\$1,830.00

ROCK

0+00 to	6+41	492	cy. of	Pit Run	@	\$17.20	per c.y. =	\$8,462.40
Energy Dissipator	2+24, 5+44	2	cy. of	Riprap	@	\$22.20	per c.y. =	\$44.40
TOTAL ROCK								\$8,506.80

MOBILIZATION

SUBTOTAL \$1,576.25

OVERHEAD & GENERAL EXPENSES

10% **SUBTOTAL \$1,657.76**

Optional Rock? NO

TOTAL \$18,235.38
COST PER STATION \$2,844.83

SUMMARY OF ROAD

Sale:	Richmond Fire Salvage		Road: L-3025-H
Required Pre-Haul Maintenance -	0+00 0.00	stations miles	Required Reconstruction -
			0+00 0.00
			stations miles
Required Abandonment -	12+87 0.24	stations miles	Optional Reconstruction -
			0+00 0.00
			stations miles
			Optional Construction -
			12+87 0.24
			stations miles

CONSTRUCTION

CLEARING/GRUBBING

Scattering Organic Debris	12.87	sta @	\$280.00	per sta	\$3,603.60
Remove large stumps -	5.00	@	\$350.00	each	\$1,750.00
Construct waste areas -	2.00	hours @	\$350.00	per hour	\$700.00

EXCAVATION

Road Construction Earthwork	12.87	sta. @	\$269.23	per sta. =	\$3,464.99
Grade and shape subgrade -	12.87	stations @	\$14.60	per station	\$187.90
Full Bench	600	cy. @	\$2.00	per c.y.=	\$1,200.00

MISC.

Roll subgrade w/ vibratory roller prior to rocking -	12.87	stations @	\$12.12	per station	\$155.98
Construct turnouts @ sta. -	1.00	@	\$134.62	each	\$134.62
Construct turnaround @ sta. -	1.00	@	\$134.62	each	\$134.62
Construct landing -	1.00	@	\$538.46	each	\$538.46

ENDHAUL

Full Bench	600	cy. @	\$2.00	per c.y.=	\$1,200.00
TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.					\$13,070.17

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>					
160	LF of 18"	\$4,880.00	0	LF of 24"	\$0.00
		\$4,880.00			\$0.00
<u>Half Rounds</u>					
0	LF of 24"	\$0.00	0	LF of 30"	\$0.00
		\$0.00			\$0.00
<u>Culvert Stakes & Markers</u>					
0	stakes	\$0.00			
0	markers	\$0.00			
		\$0.00			
TOTAL CULVERTS					\$4,880.00

ROCK

Energy Dissipator	0+00	4	cy. of	Riprap	@	\$22.24	per c.y.=	\$88.96
0+00 to	12+87	918	cy. of	Pit Run	@	\$17.24	per c.y.=	\$15,826.32
TOTAL ROCK								\$15,915.28

ABANDONMENT

Construct waterbar -	10.00	@	\$71.67	each	\$716.70
Construct Spoil Berm -	1.00	@	\$215.00	each	\$215.00
Grass seed and fertilize -	47.20	lbs @	\$4.00	per lbs	\$188.80
Remove culverts from state lands -	5.00	@	\$706.36	total	\$706.36
TOTAL ABANDONMENT					\$1,826.86

SUBTOTAL **\$35,692.31**

MOBILIZATION

SUBTOTAL **\$4,416.66**

OVERHEAD & GENERAL EXPENSES

SUBTOTAL **\$4,010.90**

TOTAL \$44,119.87

COST PER STATION \$3,428.12

Optional Rock? NO

SUMMARY OF ROAD

Sale:	Richmond Fire Salvage	Road:	L-3025-I														
Required Pre-Haul Maintenance-	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles	Required Reconstruction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles	Required Construction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles
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Required Abandonment-	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles	Optional Reconstruction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">0+00</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.00</td> <td style="text-align: right;">miles</td> </tr> </table>	0+00	stations	0.00	miles	Optional Construction -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border: 1px solid black;">9+12</td> <td style="text-align: right;">stations</td> </tr> <tr> <td style="text-align: center; border: 1px solid black;">0.17</td> <td style="text-align: right;">miles</td> </tr> </table>	9+12	stations	0.17	miles
0+00	stations																
0.00	miles																
0+00	stations																
0.00	miles																
9+12	stations																
0.17	miles																

CONSTRUCTION

CLEARING/GRUBBING

Scattering Organic Debris 9.12 sta @ \$280.00 per sta \$2,553.60

EXCAVATION

Road Construction Earthwork 9.12 sta @ \$194.44 per sta. = \$1,773.29
 Grade and shape subgrade - 9.12 stations @ \$14.60 per station \$133.15

MISC.

Roll subgrade w/ vibratory roller prior to rocking - 9.12 stations @ \$12.12 per station \$110.53
 Construct turnouts @ sta. - 1.00 @ \$134.62 each \$134.62
 Construct turnaround @ sta. - 2.00 @ \$134.62 each \$269.24
 Construct landing - 1.00 @ \$538.46 each \$538.46

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$5,512.89**

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>			
100	LF of 18"	\$3,050.00	0 LF of 24" \$0.00
		\$3,050.00	\$0.00
<u>Half Rounds</u>			
0	LF of 24"	\$0.00	0 LF of 30" \$0.00
		\$0.00	\$0.00
<u>Culvert Stakes & Markers</u>			
0	stakes	\$0.00	
0	markers	\$0.00	
		\$0.00	
			TOTAL CULVERTS

\$3,050.00

ROCK

Energy Dissipator	2+42, 8+19	2	cy. of	Riprap	@	\$22.66	per c.y.=	\$45.32
0+00 to	9+12	770	cy. of	Pit Run	@	\$17.66	per c.y.=	\$13,598.20
								TOTAL ROCK

\$13,643.52

SUBTOTAL **\$22,206.41**

MOBILIZATION

SUBTOTAL **\$1,862.91**

OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$2,406.93**

TOTAL **\$26,476.25**

Optional Rock? NO

COST PER STATION **\$2,903.10**

ROCK DEVELOPMENT COST SUMMARY

Pit:	<u>Jules Pit</u>	Location:	<u>T14R05W</u>
Sale:	<u>Richmond Fire Salvage</u>	Road:	<u>2458 c.y.</u>
Swell:	<u>1.40</u>	Stockpile:	<u>c.y.</u>
Shrinkage	<u>1.16</u>	Total Truck Loads:	<u>2458 c.y.</u>
Drill Pct.:	<u>0%</u>	In Place Total:	<u>1756 c.y.</u>

Pit Development & Cleanup including Clearing and grubbing of Waste Area @ adjacent to pit, place overburden in Waste Area, spread and compact.			
	\$5.86 /cu.yd x	2333 cu.yds.	\$13,671.38
Drill & Shoot:	\$4.50 /cu.yd x	0 cu.yds.	\$0.00
Rip Rock:	\$2.50 /cu.yd x	1756 cu.yds.	\$4,390.00
Push Rock:	\$0.67 /cu.yd x	2458 cu.yds.	\$1,646.86
Load Dump Truck:	\$1.50 /cu.yd x	2458 cu.yds.	\$3,687.00
		Subtotal	<u>\$23,395.24</u>

Move in D-8	1	@	\$637.59	=	\$637.59
Move in Loader	1	@	\$491.67	=	\$491.67
Move in Excavator	1	@	\$637.59	=	\$637.59
Move in Trucks	5	@	\$220.00	=	\$1,100.00
				Subtotal	<u>\$2,866.85</u>

TOTAL PRODUCTION COSTS \$26,262.09

Base Cost= \$10.68 Per Cu.Yd.

Road Segment	Haul Cost /cu.yd.	Application Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	One-Way Dist (ft)	ROCK COST
L-3000	\$7.68	\$1.00	\$10.68	\$19.36	30	15	15000	\$580.80
L-3000 Spot Rock	\$2.98	\$1.00	\$10.68	\$14.66	20	15	2600	\$293.20
L-3000 Energy Dissipator	\$6.98	\$6.00	\$10.68	\$23.66	1	15	13152	\$23.66
L-3025 Spot Rock	\$5.41	\$1.00	\$10.68	\$17.09	25	15	9000	\$427.25
L-3025 Energy Dissipator	\$2.98	\$6.00	\$10.68	\$19.66	1	15	2600	\$19.66
L-3025-B	\$6.36	\$1.00	\$10.68	\$18.04	193	15	11500	\$3,481.72
L-3025-G	\$5.52	\$1.00	\$10.68	\$17.20	492	15	9300	\$8,462.40
L-3025-G Energy Dissipator	\$5.52	\$6.00	\$10.68	\$22.20	2	15	9300	\$44.40
L-3025-H Energy Dissipator	\$5.56	\$6.00	\$10.68	\$22.24	4	15	9400	\$88.96
L-3025-H	\$5.56	\$1.00	\$10.68	\$17.24	918	15	9400	\$15,826.32
L-3025-I Energy Dissipator	\$5.98	\$6.00	\$10.68	\$22.66	2	15	10500	\$45.32
L-3025-I	\$5.98	\$1.00	\$10.68	\$17.66	770	15	10500	\$13,598.20
				Total C.Y.	2458		Sub Total	<u>\$42,891.89</u>

TOTAL ROCKING COSTS \$42,891.89



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region:

Timber Sale Name:

Application Number:

EXCISE TAX APPLICABLE ACTIVITIES

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

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

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

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

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

EXCISE TAX EXEMPT ACTIVITIES

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

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

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