



TIMBER NOTICE OF SALE

SALE NAME: BLUE VIEW

AGREEMENT NO: 30-103762

AUCTION: July 24, 2024 starting at 10:00 a.m., Olympic Region Office, Forks, WA

COUNTY: Clallam

SALE LOCATION: Sale located approximately 17 miles north of Forks WA

PRODUCTS SOLD AND SALE AREA: All timber, except trees marked with a band of blue paint, bounded out by leave tree area tags, or any downed redcedar; bounded by timber sale boundary tags, the E-2000 Road and timber type change in Unit 1; timber sale boundary tags, timber type change and the E-2001 Road in Unit 2; timber sale boundary tags in Unit 3.

All timber bounded with right of way boundary tags.

All forest products above located on part(s) of Sections 1 all in Township 30 North, Range 13 West, W.M., containing 98 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:

Table with columns: Species, Avg DBH, Ring Count, Total MBF, and MBF by Grade (1P, 2P, 3P, SM, 1S, 2S, 3S, 4S, UT). Rows include Silver fir, Hemlock, Spruce, Douglas fir, Red alder, Noble fir, Redcedar, and Sale Total.

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: 90% cable, 10% shovel. Forest products sold under this contract shall be harvested and removed using cable, cable-tethered and ground based equipment. Cable-tethered equipment is limited to sustained slopes of 75 percent and less. Other ground based equipment is limited to tracked equipment on sustained slopes that are 45 percent and less. Rubber tired skidders are restricted unless approved by the Contract Administrator. 30' Equipment Limitations Zones (ELZ) on all typed water, Rubber tired skidder must meet rutting and skidding requirements and harvest plan. Authority to use other equipment or to operate outside the equipment specifications detailed above must be approved in writing by the State.



TIMBER NOTICE OF SALE

A flagger shall be required when logging operations, including falling, yarding or loading of timber is taking place on or across the E-2000 Road.

E-2000 Road must remain open and passable to vehicles at the end of every workday and on weekends and may not be blocked to vehicular traffic more than 4 hours at a time during workdays.

ROADS: 31.43 stations of optional construction. 292.45 stations of required prehaul maintenance. 50.17 stations of optional prehaul maintenance. On the FS-3100 (stations 40+00 - 82+05) and E-2500 (stations 0+00 - 14+00), any road work, right of way timber falling and yarding, rock pit operations, or operation of heavy equipment must be performed during the limited operating period if implemented during the nesting season. The limited operating period runs from two hours after sunrise to two hours before sunset between April 1 and September 23.

In Clover Pit, the Purchaser is required to strip, drill and shoot 0.5 acres for 10,000CY of usable rock and crush 5,000CY of 4" Jaw Run

ACREAGE DETERMINATION

CRUISE METHOD: Sale acreage was 100% GPS'd. Sale units were cruised using a variable plot sample.

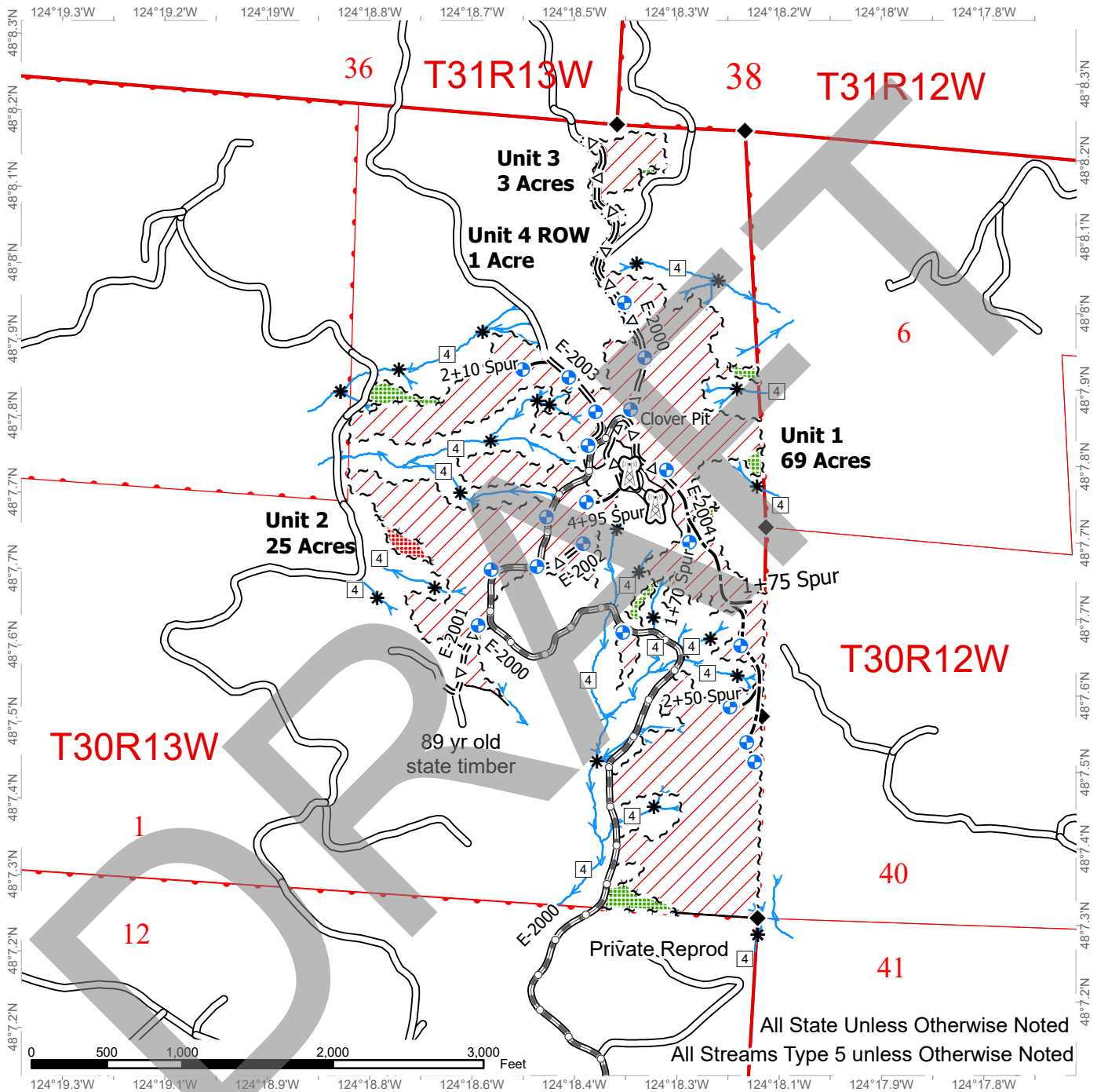
FEES: \$53,754.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: There is a locked gate on the Mary Clark Pit - contact the Olympic Region Dispatch Center at 360-374-2800 to obtain a AA-1 key.

TIMBER SALE MAP

SALE NAME: BLUE VIEW
AGREEMENT #: 30-103762
TOWNSHIP(S): T30R13W
TRUST(S): State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 1520'-2380'



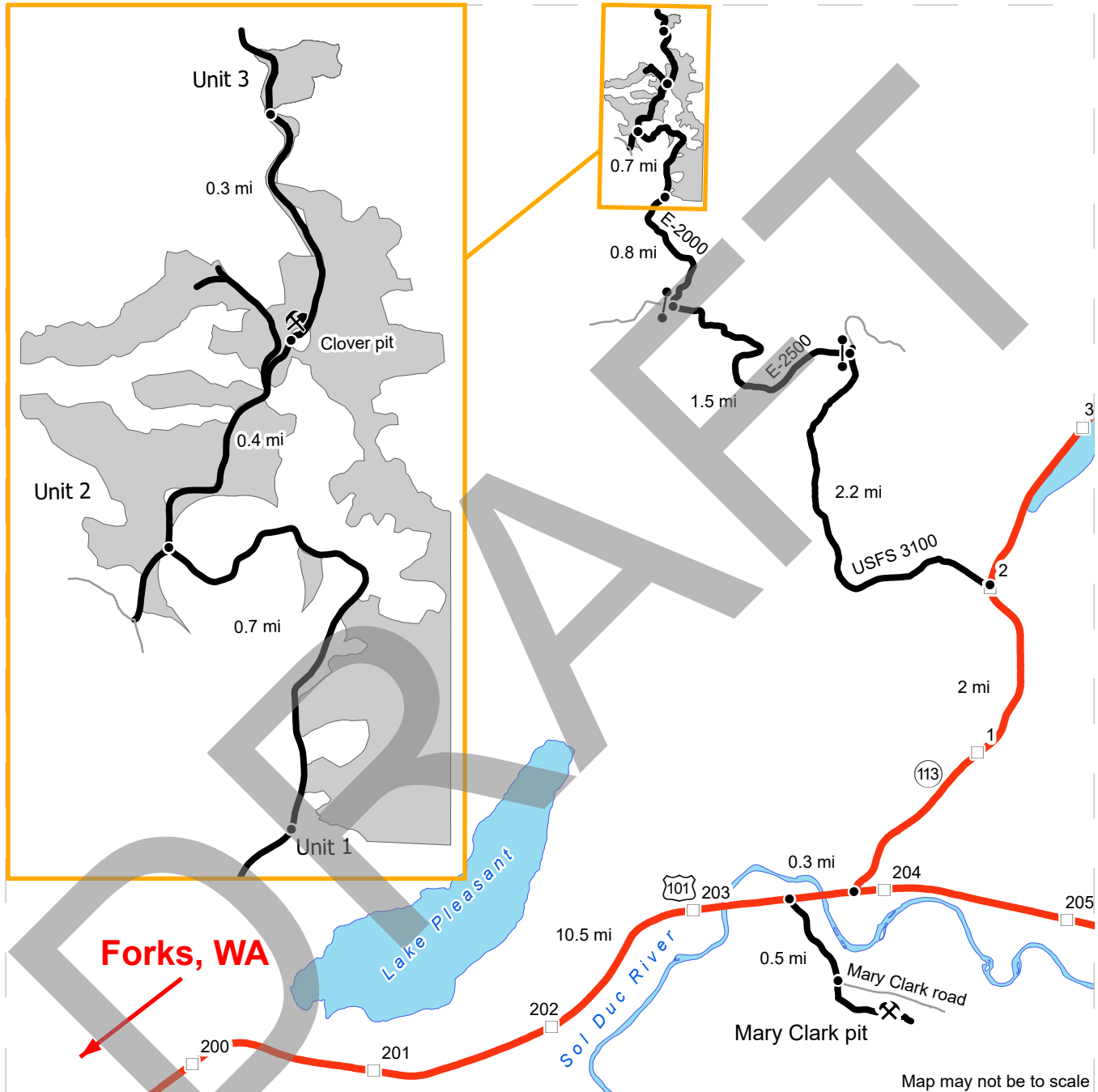
	Variable Retention Harvest		Optional Construction		Stream Type
	Non-Tradeable Leave Tree Area		Optional Pre-haul Maintenance		Stream Type Break
	Leave Tree Area		Required Pre-haul Maintenance		Survey Monument
	Sale Boundary Tags		Gate		Public Land Survey Townships
	Leave Tree Area Tags		Communication Tower		Public Land Survey Sections
	Right of Way Tags		Proposed Landing		DNR Managed Lands
	Timber Type Change		Underground Utilities		
	Existing Road		Streams		



DRIVING MAP

SALE NAME: BLUE VIEW
AGREEMENT#: 30-103762
TOWNSHIP(S): T30R13W
TRUST(S): State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 1620'-2300'



DRIVING DIRECTIONS:

Mary Clark pit: From Forks, travel North on Hwy 101 for 10.5 miles. Turn right on Mary Clark road. Continue 0.5 miles and turn right into Mary Clark pit.
Unit 1: From Forks, travel North on Hwy 101 for 10.8 miles. Turn left onto Hwy 113 and continue for 2 miles. Turn Left onto USFS 3100 and continue for 2.2 miles. Turn left onto E-2500 and continue for 1.5 miles. Turn right onto E-2000 and continue for 0.8 miles.
Unit 2: From Unit 1 continue on E-2000 for 0.7 miles.
Clover pit: From unit 2 continue for 0.4 miles. Located within Unit 1.
Unit 3: From Clover pit continue north on E-2000 for 0.3 miles.

Timber Sale Cruise Report Blue View

Sale Name: BLUE VIEW

Sale Type: LUMP SUM

Region: OLYMPIC

District: OZETTE

Lead Cruiser: Kevin Peterson

Other Cruisers:

Cruise Narrative:

Location:

This sale is located on off of the E-2000 road system. Access to all units is pretty good and no gates to access sale.

Cruise Design:

I used a 54.44/40 BAF combo for this sale, the 40 BAF was used to pick up RA and RC. Merch height was determined at 40% of the diameter at 16'. Most logs were cruised in 40' lengths except RC was cruised in 36' lengths.

Timber Quality:

This sale is mostly Silver-fir with a good component of Western Hemlock. Most trees were between 12" - 24" at DBH and had bole lengths between 65' - 85'. Throughout the sale there is scattered Red Cedar, Sitka Spruce and Red Alder. Common defects were sweep and forked tops.

Logging and Stand Conditions:

This sale is 95% uphill cable harvest and 5% ground based harvest. Overall this sale was easy to move thru and not too steep.

General Remarks:

During September stinging insects were pretty active in both units.

Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
SF	17.9	6.0		1,611	656	778	177	
WH	16.0	6.0		1,305	398	698	163	46
SS	21.1			131	58	61	12	
DF	17.7			73	31	30	12	
RA	12.4			34			32	2
NF	21.0			5	4		1	
RC	20.0			3		3		
ALL	16.7	6.0		3,162	1,147	1,570	397	48

Timber Sale Notice Weight (tons)

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
SF	15,610	6,060	7,707	1,842	
WH	14,214	4,164	7,918	1,673	460
SS	1,401	595	680	125	
DF	773	308	334	131	
RA	432			417	15
NF	54	44		10	
RC	42		42		
ALL	32,524	11,172	16,680	4,197	475

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 (%)
324.9	3.4	100.3	2.0	32,600	3.9

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
BLUE VIEW U1	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	68.0	67.7	34	16	0
BLUE VIEW U2	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	25.0	24.7	14	7	0
BLUE VIEW U3	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	3.0	3.3	2	2	0
BLUE VIEW U4 ROW	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	1.0	1.0	1	1	0
All		97.0	96.7	51	26	0

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	12.7	40	341	315	7.6	308.2	30.5
DF	LIVE	3 SAW	Domestic	8.6	40	349	312	10.5	333.7	30.3
DF	LIVE	4 SAW	Domestic	5.6	24	134	126	5.6	130.8	12.2

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
NF	LIVE	2 SAW	Domestic	12.5	40	46	46	0.0	44.1	4.4
NF	LIVE	4 SAW	Domestic	6.4	27	8	8	0.0	9.7	0.8
RA	LIVE	4 SAW	Domestic	5.8	34	366	332	9.2	416.8	32.2
RA	LIVE	UTILITY	Pulp	5.3	18	18	18	0.0	15.0	1.7
RC	LIVE	3 SAW	Domestic	9.0	36	35	31	10.6	41.6	3.0
SF	LIVE	2 SAW	Domestic	13.5	40	7,167	6,766	5.6	6,060.5	656.3
SF	LIVE	3 SAW	Domestic	8.4	39	8,355	8,017	4.0	7,707.2	777.6
SF	LIVE	4 SAW	Domestic	5.3	25	1,850	1,829	1.1	1,842.2	177.4
SS	LIVE	2 SAW	Domestic	15.6	40	711	594	16.4	595.4	57.7
SS	LIVE	3 SAW	Domestic	10.4	39	676	629	6.9	679.9	61.0
SS	LIVE	4 SAW	Domestic	6.2	22	130	124	4.1	125.2	12.1
WH	LIVE	2 SAW	Domestic	14.5	40	4,630	4,104	11.4	4,163.9	398.0
WH	LIVE	3 SAW	Domestic	8.5	39	7,530	7,196	4.4	7,918.1	698.0
WH	LIVE	4 SAW	Domestic	5.3	24	1,701	1,676	1.5	1,672.6	162.6
WH	LIVE	UTILITY	Pulp	5.5	31	475	475	0.0	459.6	46.1

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 8	LIVE	Domestic	6.4	29	332	2.2	324.7	32.2
DF	9 - 11	LIVE	Domestic	10.9	40	107	25.5	139.8	10.4
DF	12 - 14	LIVE	Domestic	12.6	40	315	7.6	308.2	30.5
NF	5 - 8	LIVE	Domestic	6.4	27	8	0.0	9.7	0.8
NF	12 - 14	LIVE	Domestic	12.5	40	46	0.0	44.1	4.4
RA	5 - 8	LIVE	Pulp	5.3	18	18	0.0	15.0	1.7
RA	5 - 8	LIVE	Domestic	5.5	33	235	8.7	304.6	22.8
RA	9 - 11	LIVE	Domestic	9.8	40	97	10.3	112.2	9.4
RC	9 - 11	LIVE	Domestic	9.0	36	31	10.6	41.6	3.0
SF	5 - 8	LIVE	Domestic	6.1	30	4,688	3.2	4,880.4	454.8
SF	9 - 11	LIVE	Domestic	10.1	40	5,158	3.8	4,669.1	500.3
SF	12 - 14	LIVE	Domestic	13.2	40	5,900	5.1	5,344.9	572.3
SF	15 - 19	LIVE	Domestic	15.6	40	867	9.1	715.6	84.1
SS	5 - 8	LIVE	Domestic	6.3	21	174	3.0	193.7	16.9
SS	9 - 11	LIVE	Domestic	10.1	40	579	7.4	611.4	56.2
SS	12 - 14	LIVE	Domestic	13.2	40	288	15.1	322.2	27.9
SS	15 - 19	LIVE	Domestic	18.1	40	307	17.5	273.2	29.8
WH	5 - 8	LIVE	Pulp	5.3	26	264	0.0	250.9	25.6
WH	5 - 8	LIVE	Domestic	6.1	29	5,075	2.1	5,694.7	492.3

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
WH	9 - 11	LIVE	Domestic	10.4	40	3,797	6.2	3,896.0	368.3
WH	12 - 14	LIVE	Domestic	13.8	40	2,232	11.9	2,462.5	216.5
WH	12 - 14	LIVE	Pulp	14.3	40	211	0.0	208.7	20.5
WH	15 - 19	LIVE	Domestic	15.6	40	1,871	10.8	1,701.4	181.5

DRAFT

Cruise Unit Report BLUE VIEW U1

Unit Sale Notice Volume (MBF): BLUE VIEW U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
SF	17.7	6.0		1,203	527	553	124	
WH	16.8	6.0		951	362	475	101	14
SS	21.9			66	26	33	7	
DF	17.8			41	23	12	7	
RA	12.0			4			4	
ALL	17.3	6.0		2,265	936	1,073	242	14

Unit Cruise Design: BLUE VIEW U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	68.0	67.7	34	16	0

Unit Cruise Summary: BLUE VIEW U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
SF	42	108	3.2	1
WH	47	84	2.5	1
SS	4	7	0.2	0
DF	3	4	0.1	0
RA	1	1	0.0	0
ALL	97	204	6.0	2

Unit Cruise Statistics: BLUE VIEW U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
SF	172.9	62.7	10.8	102.3	17.7	2.7	17,696	65.2	11.1
WH	134.5	78.0	13.4	104.0	23.3	3.4	13,985	81.4	13.8
SS	11.2	199.3	34.2	86.4	12.1	6.1	968	199.7	34.7
DF	6.4	278.0	47.7	95.0	10.1	5.8	609	278.2	48.0
RA	1.2	583.1	100.0	47.1	0.0	0.0	55	583.1	100.0
ALL	326.2	24.4	4.2	102.1	21.3	2.2	33,313	32.4	4.7

Unit Summary: BLUE VIEW U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	17.8	68	85	650	609	6.3	3.7	6.4	1.5	41.4
RA	LIVE	CUT	1	ALL	12.0	40	47	55	55	0.0	1.5	1.2	0.3	3.8
SF	LIVE	CUT	42	ALL	17.7	67	85	18,499	17,696	4.3	101.2	172.9	41.1	1,203.3
SS	LIVE	CUT	4	ALL	21.9	66	83	1,132	968	14.5	4.3	11.2	2.4	65.8
WH	LIVE	CUT	47	ALL	16.8	66	81	15,055	13,985	7.1	87.4	134.5	32.8	951.0
ALL	LIVE	CUT	97	ALL	17.4	66	83	35,392	33,313	5.9	198.1	326.2	78.2	2,265.3
ALL	ALL	ALL	97	ALL	17.4	66	83	35,392	33,313	5.9	198.1	326.2	78.2	2,265.3

DRAFT

Cruise Unit Report BLUE VIEW U2

Unit Sale Notice Volume (MBF): BLUE VIEW U2

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
SF	18.3			387	123	213	51	
WH	13.2			286	24	184	55	24
SS	20.8			48	27	19	3	
RA	12.5			30			28	2
DF	17.2			26	8	14	4	
RC	20.0			3		3		
ALL	14.7			781	182	432	141	26

Unit Cruise Design: BLUE VIEW U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	25.0	24.7	14	7	0

Unit Cruise Summary: BLUE VIEW U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
SF	6	36	2.6	0
WH	19	31	2.2	0
SS	4	6	0.4	0
RA	4	8	0.6	0
DF	3	3	0.2	0
RC	1	1	0.1	0
ALL	37	85	6.1	0

Unit Cruise Statistics: BLUE VIEW U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
SF	140.0	103.1	27.6	110.4	13.6	5.5	15,461	104.0	28.1
WH	120.5	81.5	21.8	95.1	25.7	5.9	11,460	85.5	22.6
SS	23.3	150.8	40.3	82.9	43.5	21.7	1,934	156.9	45.8
RA	22.9	202.6	54.2	52.8	43.6	21.8	1,208	207.3	58.4
DF	11.7	198.7	53.1	88.9	18.0	10.4	1,037	199.5	54.1

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 (%)
RC	2.9	374.2	100.0	42.6	0.0	0.0	122	374.2	100.0
ALL	321.2	24.4	6.5	97.2	28.8	4.7	31,222	37.7	8.0

Unit Summary: BLUE VIEW U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	17.2	68	85	1,132	1,037	8.4	7.2	11.7	2.8	25.9
RA	LIVE	CUT	4	ALL	12.5	44	53	1,338	1,208	9.7	26.8	22.9	6.5	30.2
RC	LIVE	CUT	1	ALL	20.0	45	55	136	122	10.6	1.3	2.9	0.6	3.0
SF	LIVE	CUT	6	ALL	18.3	75	96	16,225	15,461	4.7	76.6	140.0	32.7	386.5
SS	LIVE	CUT	4	ALL	20.8	59	74	2,068	1,934	6.5	9.9	23.3	5.1	48.4
WH	LIVE	CUT	19	ALL	13.2	53	64	11,879	11,460	3.5	126.8	120.5	33.2	286.5
ALL	LIVE	CUT	37	ALL	15.4	59	74	32,779	31,222	4.8	248.6	321.2	80.9	780.5
ALL	ALL	ALL	37	ALL	15.4	59	74	32,779	31,222	4.8	248.6	321.2	80.9	780.5

Cruise Unit Report BLUE VIEW U3

Unit Sale Notice Volume (MBF): BLUE VIEW U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	16.9			51	7	30	5	8
SF	19.3			16	7	7	2	
SS	19.0			12	5	5	1	
DF	19.0			6		5	1	
ALL	17.7			85	19	47	10	8

Unit Cruise Design: BLUE VIEW U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	3.0	3.3	2	2	0

Unit Cruise Summary: BLUE VIEW U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	7	7	3.5	0
SF	2	2	1.0	0
SS	2	2	1.0	0
DF	1	1	0.5	0
ALL	12	12	6.0	0

Unit Cruise Statistics: BLUE VIEW U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	190.5	20.2	14.3	88.9	33.3	12.6	16,935	39.0	19.0
SF	54.4	141.4	100.0	98.2	3.7	2.6	5,345	141.5	100.0
SS	54.4	0.0	0.0	75.4	5.0	3.5	4,104	5.0	3.5
DF	27.2	141.4	100.0	70.6	0.0	0.0	1,922	141.4	100.0
ALL	326.6	0.0	0.0	86.7	27.2	7.8	28,304	27.2	7.8

Unit Summary: BLUE VIEW U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	19.0	65	81	2,461	1,922	21.9	13.8	27.2	6.2	5.8
SF	LIVE	CUT	2	ALL	19.3	67	84	5,345	5,345	0.0	26.8	54.4	12.4	16.0
SS	LIVE	CUT	2	ALL	19.0	60	75	4,579	4,104	10.4	27.7	54.4	12.5	12.3
WH	LIVE	CUT	7	ALL	16.9	61	76	17,635	16,935	4.0	122.3	190.5	46.3	50.8
ALL	LIVE	CUT	12	ALL	17.7	62	77	30,020	28,304	5.7	190.6	326.6	77.5	84.9
ALL	ALL	ALL	12	ALL	17.7	62	77	30,020	28,304	5.7	190.6	326.6	77.5	84.9

DRAFT

Cruise Unit Report BLUE VIEW U4 ROW

Unit Sale Notice Volume (MBF): BLUE VIEW U4 ROW

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	16.6			16	5	10	2
SF	18.0			5		5	1
NF	21.0			5	4		1
SS	17.0			4		4	1
ALL	17.4			31	9	18	4

Unit Cruise Design: BLUE VIEW U4 ROW

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	1.0	1.0	1	1	0

Unit Cruise Summary: BLUE VIEW U4 ROW

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	3	3	3.0	0
SF	1	1	1.0	0
NF	1	1	1.0	0
SS	1	1	1.0	0
ALL	6	6	6.0	0

Unit Cruise Statistics: BLUE VIEW U4 ROW

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	163.3	0.0	0.0	101.0	3.7	2.1	16,493	3.7	2.1
SF	54.4	0.0	0.0	100.7	0.0	0.0	5,484	0.0	0.0
NF	54.4	0.0	0.0	95.6	0.0	0.0	5,205	0.0	0.0
SS	54.4	0.0	0.0	78.0	0.0	0.0	4,248	0.0	0.0
ALL	326.6	0.0	0.0	96.2	9.8	4.0	31,431	9.8	4.0

Unit Summary: BLUE VIEW U4 ROW

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
NF	LIVE	CUT	1	ALL	21.0	69	87	5,205	5,205	0.0	22.6	54.4	11.9	5.2
SF	LIVE	CUT	1	ALL	18.0	65	82	5,484	5,484	0.0	30.8	54.4	12.8	5.5
SS	LIVE	CUT	1	ALL	17.0	60	75	4,663	4,248	8.9	34.5	54.4	13.2	4.2
WH	LIVE	CUT	3	ALL	16.6	64	79	17,040	16,493	3.2	108.7	163.3	40.1	16.5
ALL	LIVE	CUT	6	ALL	17.5	64	80	32,392	31,431	3.0	196.6	326.6	78.0	31.4
ALL	ALL	ALL	6	ALL	17.5	64	80	32,392	31,431	3.0	196.6	326.6	78.0	31.4

DRAFT

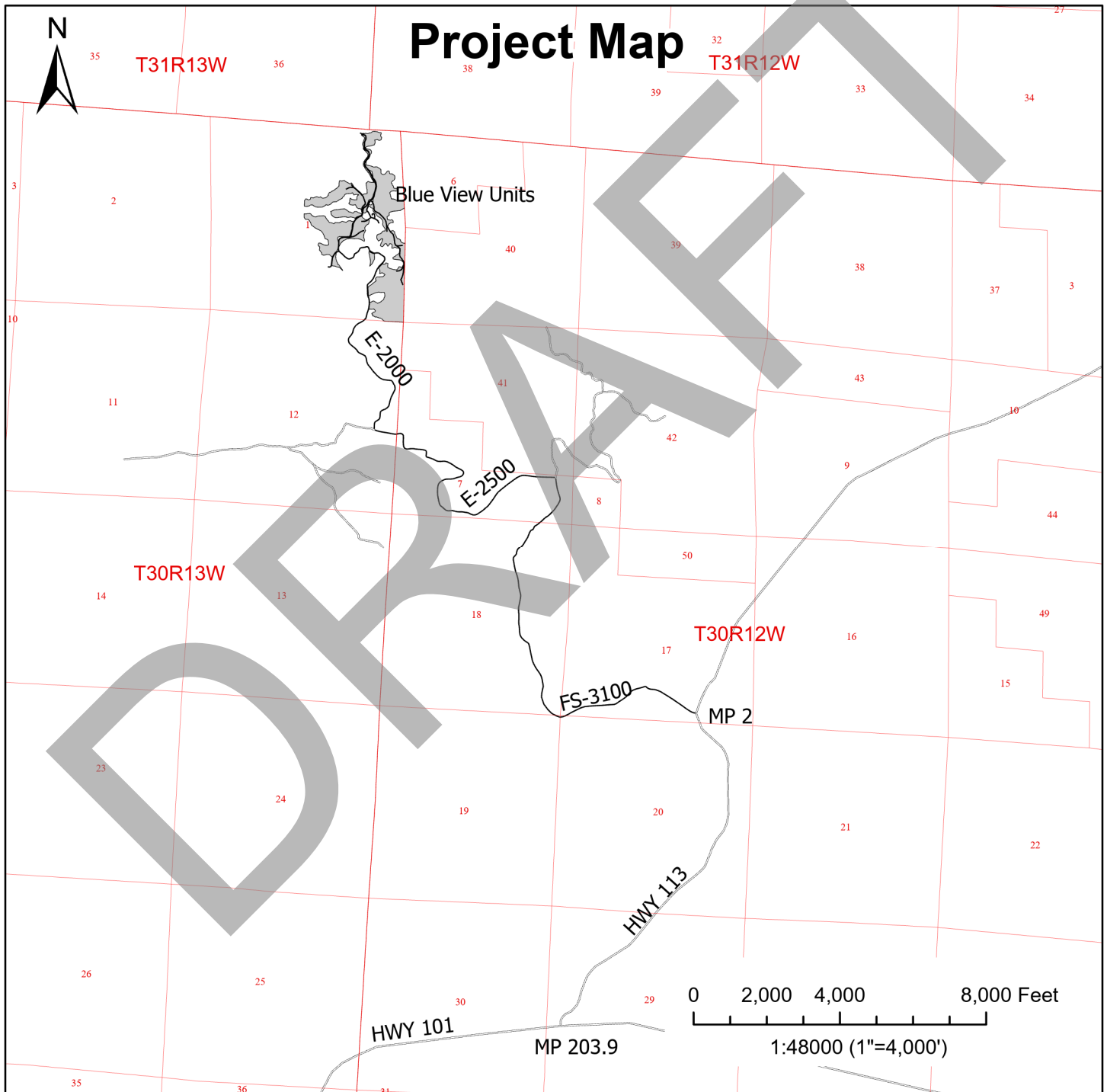
STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
BLUE VIEW TIMBER SALE ROAD PLAN
CLALLAM COUNTY
COAST DISTRICT

AGREEMENT NO.: 30-103762

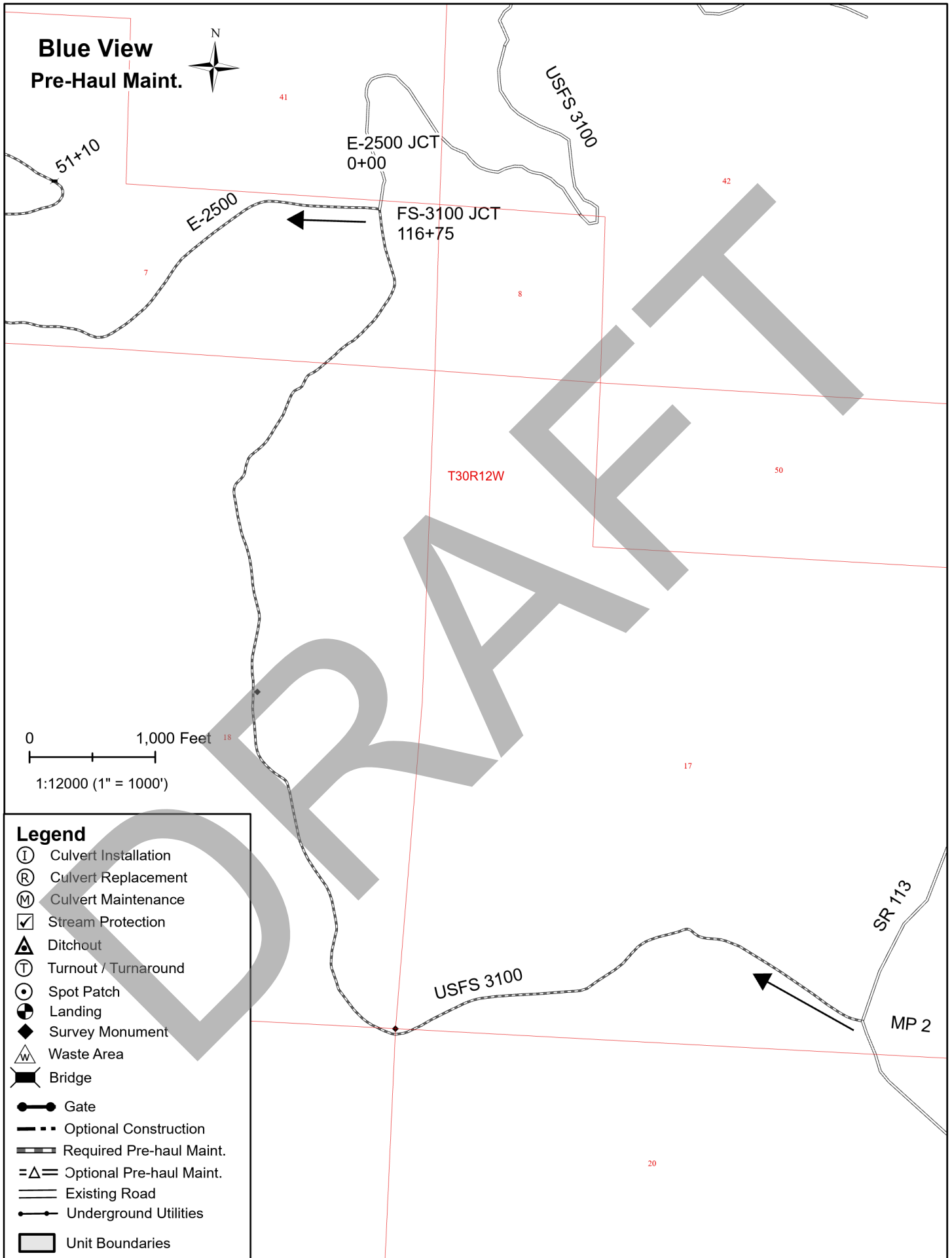
DISTRICT ENGINEER: BILL MEHL

DATE 06 DECEMBER 2023

DRAWN AND COMPILED BY: MAIJA GRIFFIOEN



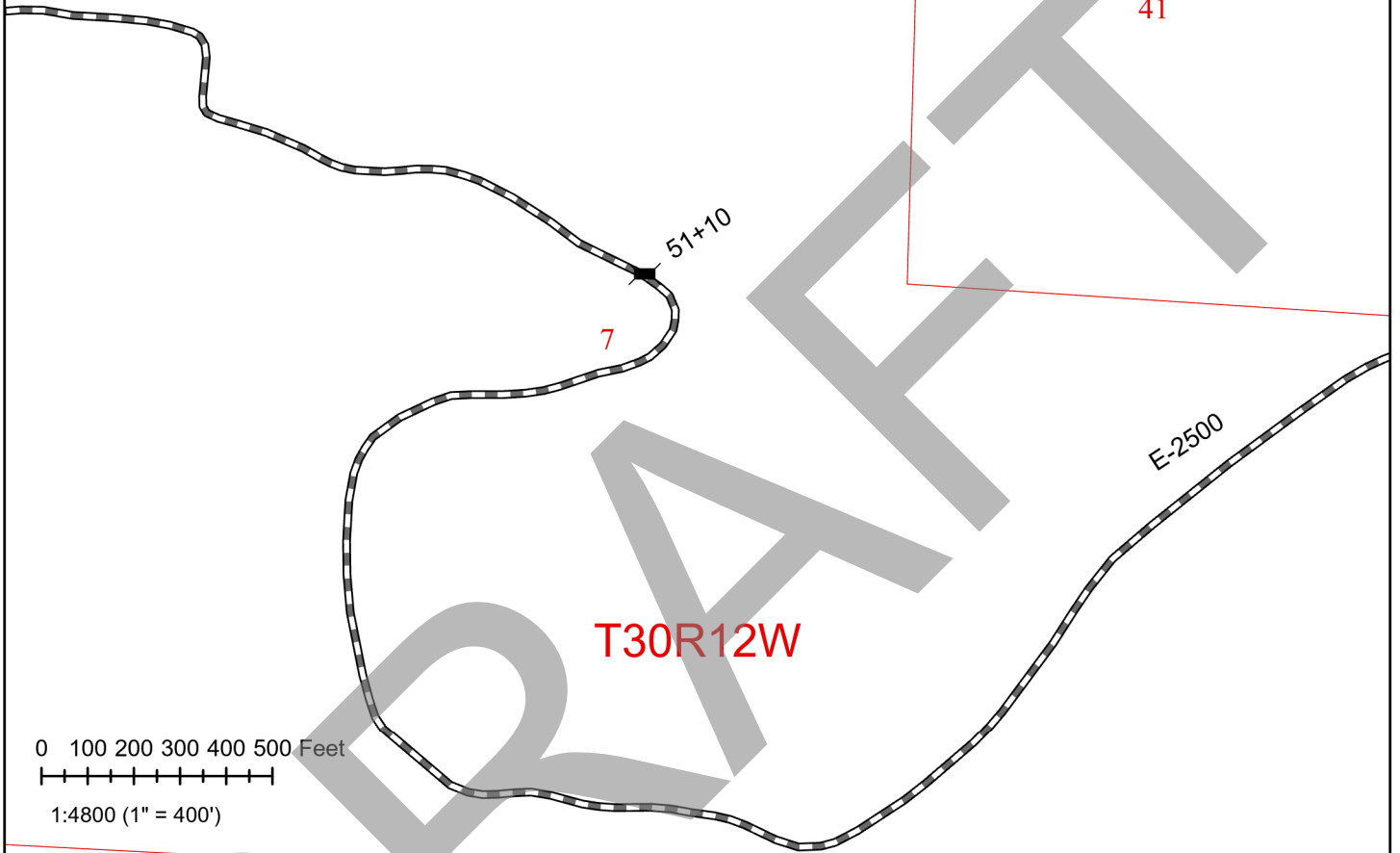
**Blue View
Pre-Haul Maint.**



Legend

- ① Culvert Installation
- Ⓡ Culvert Replacement
- Ⓜ Culvert Maintenance
- ☑ Stream Protection
- ▲ Ditchout
- Ⓣ Turnout / Turnaround
- ⊙ Spot Patch
- ⊙ Landing
- ◆ Survey Monument
- ⚠ Waste Area
- ▬ Bridge
- Gate
- - - Optional Construction
- ▬ Required Pre-haul Maint.
- =△= Optional Pre-haul Maint.
- Existing Road
- Underground Utilities
- Unit Boundaries

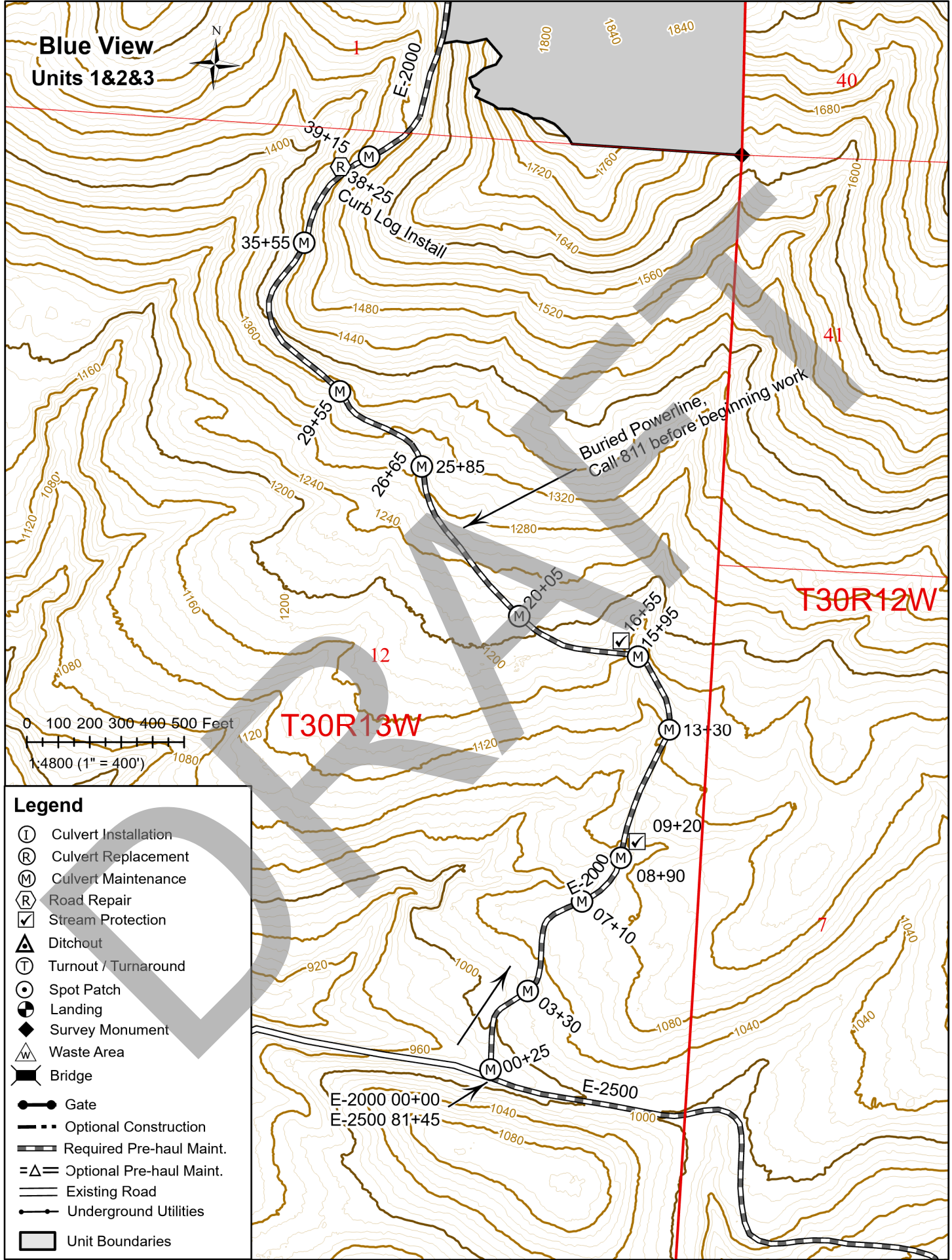
**Blue View
Pre-Haul Maint.**



Legend

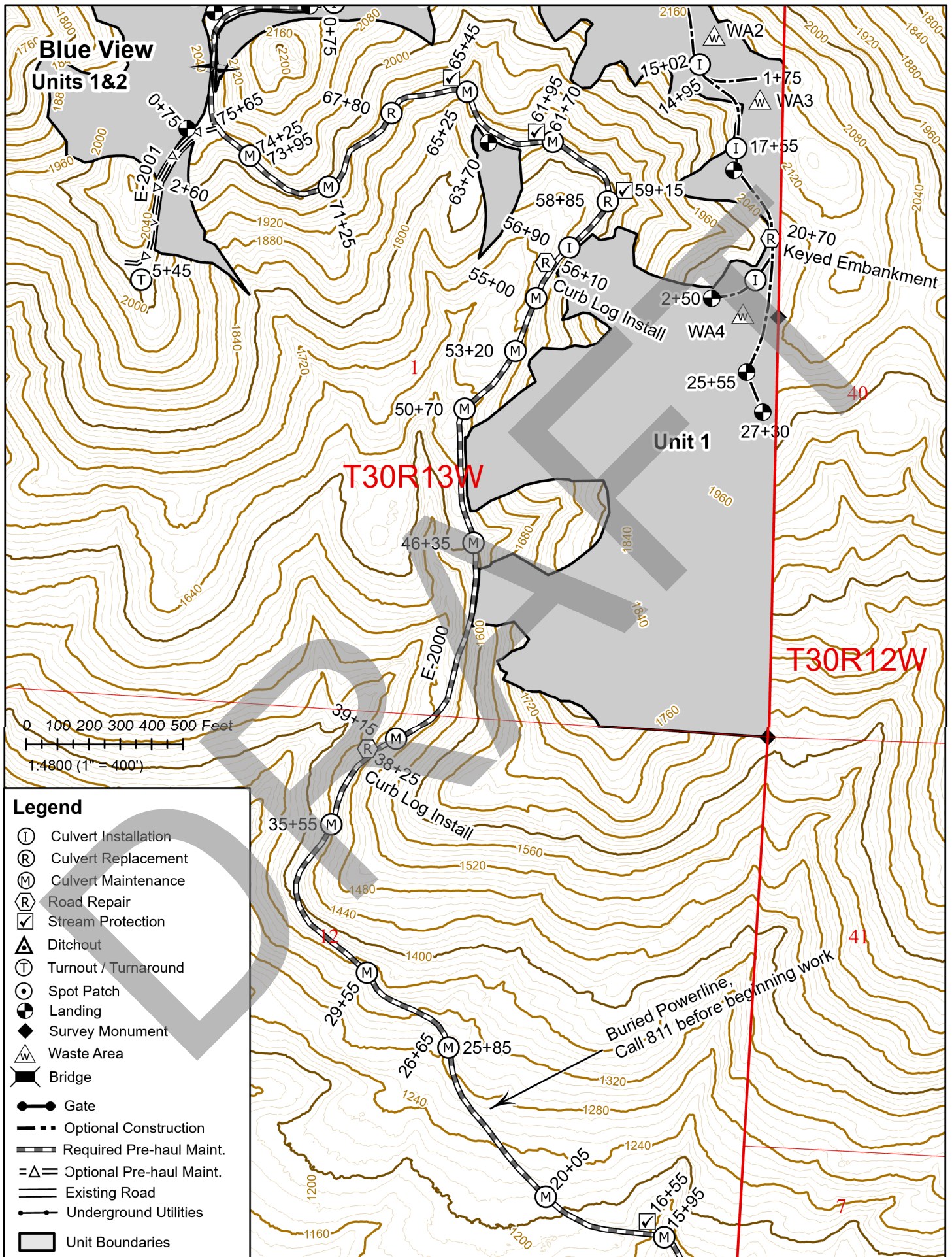
- ① Culvert Installation
- Ⓜ Culvert Replacement
- Ⓜ Culvert Maintenance
- ☑ Stream Protection
- ⚠ Ditchout
- Ⓜ Turnout / Turnaround
- ⊙ Spot Patch
- ⊙ Landing
- ◆ Survey Monument
- ⚠ Waste Area
- ▬ Bridge
- Gate
- Optional Construction
- ▬ Required Pre-haul Maint.
- =Δ= Optional Pre-haul Maint.
- Existing Road
- Underground Utilities
- Unit Boundaries

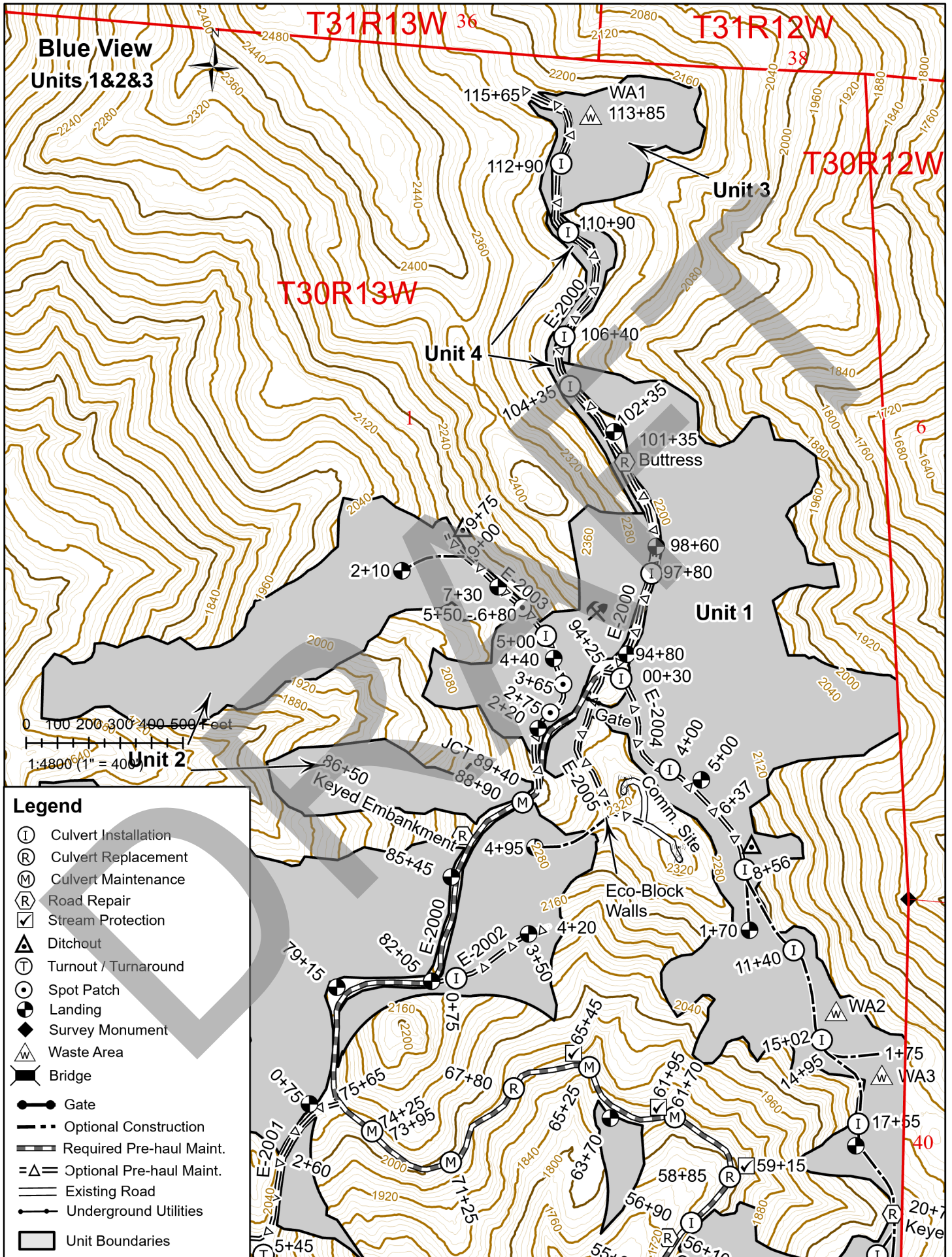
**Blue View
Units 1&2&3**



Legend

- Ⓜ Culvert Installation
- Ⓜ Culvert Replacement
- Ⓜ Culvert Maintenance
- Ⓜ Road Repair
- ☑ Stream Protection
- △ Ditchout
- Ⓜ Turnout / Turnaround
- Ⓜ Spot Patch
- Ⓜ Landing
- ◆ Survey Monument
- Ⓜ Waste Area
- ▬ Bridge
- Gate
- Optional Construction
- ▬ Required Pre-haul Maint.
- =△= Optional Pre-haul Maint.
- Existing Road
- Underground Utilities
- ▭ Unit Boundaries





STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BLUE VIEW TIMBER SALE ROAD PLAN
CLALLAM COUNTY
COAST DISTRICT

AGREEMENT NO.: 30-103762

DISTRICT ENGINEER: BILL MEHL

DATE: 12/6/2023

DRAWN & COMPILED BY: MAIJA GRIFFIOEN

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>
FS-3100	0+00 – 116+75	Pre-Haul Maintenance
E-2500	0+00 – 81+45	Pre-Haul Maintenance
E-2000	0+00 – 94+25	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>
E-2000	94+25 – 115+65	Pre-Haul Maintenance
E-2001	0+00 – 5+45	Pre-Haul Maintenance
E-2002	0+00 – 4+20	Pre-Haul Maintenance
E-2003	0+00 – 9+75	Pre-Haul Maintenance
2+10 Spur	0+00 – 2+10	Construction
E-2004	0+00 – 6+37	Pre-Haul Maintenance
E-2004	6+37 – 27+30	Construction
1+70 Spur	0+00 – 1+70	Construction
1+75 Spur	0+00 – 1+75	Construction
E-2005	0+00 – 3+00	Pre-haul Maintenance
4+95 Spur	0+00 – 4+95	Construction

0-4 CONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
2+10 Spur	0+00 – 2+10	See Below
E-2004	6+37 – 27+37	See Below
1+70 Spur	0+00 – 1+70	See Below
1+75 Spur	0+00 – 1+75	See Below

2+50 Spur	0+00 – 2+50	See Below
4+95 Spur	2+20 – 4+95	See Below
Total:	31+80	

Construction includes, but is not limited to:
 Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, compacting road surfaces, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, spreading grass seed and hay.

0-6 PRE-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
FS-3100	0+00 – 116+75	Grade and shape road in accordance with clause 2-5. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list. Brush road in accordance with Clause 3-1 and Brushing Detail.
E-2500	0+00 – 81+45	Grade and shape road in accordance with clause 2-5. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list. Brush road in accordance with Clause 3-1 and Brushing Detail.
E-2000	0+00 – 115+65	Grade and shape road in accordance with clause 2-5. Clean culverts in accordance with clause 2-6 and Culvert List. Maintain erosion control structures in accordance with clause 2-8, 8-1 and as directed by Contract Administrator. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list. Brush road in accordance with Clause 3-1 and Brushing Detail. Install road shoulder guards in accordance with clause 7-3 and in accordance with curb log detail.
E-2001	0+00 – 5+45	Grade and shape road in accordance with clause 2-5. Install culverts in accordance with clause 2-6 and Culvert List. Maintain erosion control structures in accordance with clause 2-8, 8-1 and as directed by Contract Administrator. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list.
E-2002	0+00 – 4+20	Grade and shape road in accordance with clause 2-5. Install culverts in accordance with

		clause 2-6 and Culvert List. Maintain erosion control structures in accordance with clause 2-8, 8-1 and as directed by Contract Administrator. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list.
E-2003	0+00 – 9+75	Grade and shape road in accordance with clause 2-5. Clean culverts in accordance with clause 2-6 and Culvert List. Maintain erosion control structures in accordance with clause 2-8, 8-1 and as directed by Contract Administrator. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list.
E-2004	0+00 – 6+37	Grade and shape road in accordance with clause 2-5. Clean culverts in accordance with clause 2-6 and Culvert List. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list.
E-2005	0+00 – 3+00	Grade and shape road in accordance with clause 2-5. Apply rock in accordance with Rock List. Compact rock in accordance with Compaction list.
Total:	342+62	

Maintenance includes, but is not limited to:

Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacement, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

0-7 POST-HAUL MAINTENANCE

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

0-12 DEVELOP ROCK SOURCE

The Purchaser shall develop a new rock source called Clover Pit. Development will involve stripping approximately 0.5 acre to useable rock as determined by the Contract Administrator and drilling and shooting 10,000 cubic yards of rock with 5,000 cubic yards of 4" jaw material being manufactured. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

0-13 STRUCTURES

The Purchaser shall acquire and install all structures. Requirements for these structures are listed in Section 7 Structures.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

Unless controlled by construction stakes or design data (plan, profile, and cross-sections), road work shall be performed in accordance with the dimensions shown on the Typical Section Sheet and the specifications within this Road Plan.

1-5 DESIGN DATA

Design data is available upon request at the Department of Natural Resources Olympic Region Office in Forks, WA.

1-6 ORDER OF PRECEDENCE

Any conflict or inconsistency in this Road Plan shall be resolved by giving the documents precedence in the following order:

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

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

1-7 TEMPORARY ROAD CLOSURE

The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before the closure of roads FS-3100, E-2500, and E-2000. Road work shall not close any road for more than 4 hours.

<u>Road</u>	<u>Number of Allowable Closed Hours</u>
E-2000	4

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

The Purchaser is responsible for the repair or replacement of all materials, roadway infrastructure, and road components damaged during roadwork or operation activities. Repairs and replacements shall be directed by the Contract Administrator. Repairs to structural materials will be made according to the manufacturer's recommendation, and shall not begin without written approval from the Contract Administrator.

1-9 DAMAGED METALLIC COATING

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

1-12 SURVEY MONUMENTS

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

Note: Survey monument at Clover Pit allowed to be obliterated

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

Road work must be in accordance with the State's marked location. All road work is marked as follows:

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

1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the construction stakes set in the field for grade and alignment. Reconstruction of existing road grades must conform to the original location except where construction staked or designed.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
E-2000	0+00 – 115+65	Construction Stakes
E-2001	0+00 – 5+45	Construction Stakes
E-2002	0+00 – 4+20	Construction Stakes
E-2003	0+00 – 9+75	Construction Stakes
2+10 Spur	0+00 – 2+10	Construction Stakes
E-2004	0+00 – 27+30	Construction Stakes
1+70 Spur	0+00 – 1+70	Construction Stakes
1+75 Spur	0+00 – 1+75	Construction Stakes
2+70 Spur	0+00 – 2+50	Construction Stakes
4+95 Spur	0+00 – 2+75	Construction Stakes

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.

SUBSECTION TIMING

1-20 COMPLETE BY DATE

Purchaser shall complete pre-haul road work before the start of timber haul. All of ROW timber for new construction must be hauled prior to harvest operations, unless approved by contract administrator.

1-21 HAUL APPROVAL

The Purchaser shall not use roads under this Road Plan without written approval from the Contract Administrator.

1-22 WORK NOTIFICATIONS

On all roads, the Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before work begins.

1-23 ROAD WORK PHASE APPROVAL

Written approval by Contract Administrator needs to be given at these phases of road work:

- Subgrade approval
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

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

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
E-2000	0+00 – 101+75	Curb Log installs, Keyed Embankment/Eco-block walls	October 15 th – April 15 th
E-2000	0+00 – 94+25	ANY	More than 4 hours a day for Cell tower access
E-2004	0+00 – 27+30 (All Stations)	All Construction	October 15 th – April 15 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, the Purchaser shall provide a maintenance plan to include further protection of State resources. The Contract Administrator must approve the maintenance plan in writing, and preventative measures shall be put in place, before operation in the closure period. The Purchaser shall be required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 Designated Road Maintainer. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan shall be developed. All parties shall follow this plan.

1-27 LIMITED OPERATING PERIOD FOR MARBLED MURRELET

On the following road(s), any road work, right-of-way timber falling and yarding, rock pit operations, or operation of heavy equipment must be performed during the limited operating period if implemented during the nesting season. The limited operating period runs from two hours after sunrise to two hours before sunset between April 1 through September 23. This restriction does not apply to the hauling of timber, rock, or equipment.

<u>Road</u>	<u>Stations</u>
FS-3100	Sta 40+00 – 82+05
E-2500	Sta 0+00 – 14+00

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220 State Suspends Operation, the Contract Administrator shall suspend road work or hauling of right-of-way timber, forest products, or rock under the following conditions:

- 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, the Purchaser will be required to cease operations, or perform corrective maintenance or repairs, subject to specifications within this Road Plan. Before and during any suspension, the Purchaser shall protect the work from damage or deterioration.

1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION

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

If tracked equipment is used on bridge or asphalt surfaces, Purchaser shall immediately cease all road work and hauling operations. Any dirt, rock, or other material tracked or spilled on bridge or asphalt surface(s) shall be removed immediately. Any damage to the surface(s) shall be repaired at the Purchaser’s expense as directed by the Contract Administrator.

1-33 SNOW PLOWING RESTRICTION

On all roads, snow plowing shall be permitted only after the execution of a Snow Plowing Agreement, which is available from the Contact Administrator upon request. Purchaser shall request a Snow Plowing Agreement each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

SUBSECTION OTHER INFRASTRUCTURE

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

At existing road approaches to county roads and state highways, any mud, dirt, rock or other material tracked or spilled on the asphalt surface shall be removed immediately by the Purchaser.

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

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

<u>Road Name</u>
SR113

1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES

Requirements for the paved road approaches:
 Purchaser shall build up approaches to allow a smooth grade transition. The top of the rock road surfacing must be kept level with the surface of the paved roads at all times.

1-42 UTILITY ACCESS ROAD

The following road(s) intersect(s) existing utility access roads. Purchaser shall conduct road work on the intersecting roads so that the utility access roads are accessible at all times. As noted in clause 1-7

<u>Road</u>	<u>Stations</u>
FS-3100	0+00 – 116+75
E-2500	0+00 – 81+45
E-2000	0+00 – 94+25

1-43 ROAD WORK AROUND UTILITIES

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

<u>Road</u>	<u>Stations</u>	<u>Utility</u>	<u>Utility Contact</u>
E-2000	0+00 – 94+25	Internet and Power	PUD
4+95 Spur	2+20 – 4+95	Powerline	PUD

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 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.

C-060 Designated Roads

<u>Road</u>	<u>Stations</u>
Mary Clark Pit Access Road	0+00 – 4+85
FS-3100	0+00 – 116+75
E-2500	0+00 – 81+45
E-2000	0+00 – 94+25

2-4 PASSAGE OF LIGHT VEHICLES

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

<u>Road</u>	<u>Stations</u>
FS-3100	0+00 – 116+75
E-2500	0+00 – 81+15
E-2000	0+00 – 94+25

2-5 MAINTENANCE GRADING – EXISTING ROAD

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
FS-3100	0+00 – 116+75	Grade and shape and compact existing road surface
E-2500	0+00 – 81+15	Grade and shape and compact existing road surface
E-2000	0+00 – 94+25	Grade and shape and compact existing road surface

2-6 CLEANING CULVERTS

On the following road(s), all inlets and outlets of culverts shall be cleaned before the start of timber haul and shall be subject to the written approval of the Contract Administrator.

<u>Road</u>	<u>Stations</u>
All	See Culvert List

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

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

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>	<u>Comments</u>
E-2000	All	L & R	As needed or directed by C/A

2-9 REMOVING VEGETATIVE MATERIAL

On the following road(s), Purchaser shall remove all vegetative material, dirt, mud, and other debris on the existing road surface with a minimum loss of rock. Material removed shall be disposed of in accordance with Clause 3-21 through Clause 3-25 and Clause 4-36 through Clause 4-38.

<u>Road</u>	<u>Stations</u>
E-2000	94+25 – 116+00
E-2001	0+00 – 5+45
E-2002	0+00 – 4+20
E-2003	0+00 – 9+75
E-2004	6+37 – 27+30

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-1 BRUSHING

On the following road(s), vegetative material up to 5 inches in diameter, including limbs, shall be cut as shown on the Brushing Detail. Brushing shall be achieved by mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation shall not be disturbed unless directed by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
FS-3100	0+00 – 116+75
E-2500	0+00 – 81+15
E-2000	0+00 – 94+25

3-2 BRUSHING RESTRICTION

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal shall not be used for brushing. Excavator buckets, log loaders and similar equipment shall not be used for brushing.

3-3 BRUSH REMOVAL

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

SUBSECTION CLEARING

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 5 inches DBH or over 15 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

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

3-8 PROHIBITED DECKING AREAS

Right-of-way timber shall not be decked in the following areas:

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 40%.
- Against standing trees unless approved by the Contract Administrator.

SUBSECTION GRUBBING

3-10 GRUBBING

Remove all stumps between the grubbing limits specified on the Typical Section Sheet. Those stumps outside the grubbing limits but with undercut roots shall also be removed. Stump removal shall be accomplished using a hydraulic mounted excavator unless authorized, in writing, by the Contract Administrator. Grubbing shall be completed before starting excavation and embankment.

3-12 STUMP PLACEMENT

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

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

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

<u>Road</u>	<u>Waste Area</u>	<u>Stations</u>
E-2000	WA1	113+25 – 114+00
E-2004	WA2	13+20 – 14+10
1+75 Spur	WA3	0+75 – 1+75
2+50 Spur	WA4	1+75 – 2+25

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses G-010 Products Sold And Sale Area or G-011 Right To Remove Forest

Products And Contract Area, that is larger than one cubic foot in volume within the grubbing Typical Section Sheet.

3-21 DISPOSAL COMPLETION

All disposal of organic debris, shall be completed before the application of rock.

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris at the following locations shall be located as listed below.

<u>Road</u>	<u>Stations</u>
E-2000	113+25 – 114+00
E-2004	13+20 – 14+10
01+70 spur	0+75 – 1+75
02+50 Spur	1+75 – 2+25

3-23 PROHIBITED DISPOSAL AREAS

Organic debris shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream, or wetland.
- On road subgrades road prism 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 will fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

Organic debris shall not be buried unless otherwise stated in this Road Plan.

3-25 SCATTERING ORGANIC DEBRIS

Organic debris shall be scattered outside of the grubbing limits in accordance with Clause 3-23 unless otherwise detailed in this Road Plan and as directed by the Contract Administrator.

SUBSECTION PILE

3-31 PILING

Organic debris shall be piled no closer than 20 feet from standing timber and no higher than 20 feet in areas specified in Clause 3-22 Designated Waste Area For Organic Debris. Piles shall be free of rock and soil.

3-32 END HAULING ORGANIC DEBRIS

On the following road(s), organic debris shall be end hauled or pushed 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.

<u>Road</u>	<u>Stations</u>
E-2000	113+25 – 114+00
E-2004	13+20 – 14+10
01+70 spur	0+75 – 1+75

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

All roads shall be constructed, reconstructed, and maintained using a track mounted hydraulic excavator unless stated otherwise within this Road Plan, or permission to do otherwise is granted in writing by the Contract Administrator.

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

The following road grade and alignment standards shall be followed:

- Grade and alignment shall have smooth continuity, without abrupt changes in direction.
- Maximum grade shall not exceed 18 percent favorable and 16 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Sag vertical curves shall not have a grade change greater than 5% in 100 feet.
- Crest vertical curves shall not have a grade change greater than 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees. The following standards for switchbacks shall be followed:

- Adverse grades on switchbacks shall not exceed 10%.
- Favorable grades through switchbacks shall not exceed 12%.
- Transition grades entering and leaving switchbacks shall not exceed a 5% grade change.
- Transition grades required to meet switchback grade limitations shall be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

Unless construction staked or designed excavation slopes shall be constructed no steeper than shown on the following table:

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

Hardpan or solid rock

1/4:1

400

4-6 EMBANKMENT SLOPE RATIO

Unless construction staked or designed embankment slopes shall be constructed no steeper than shown on the following table:

<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

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

4-11 KEYED EMBANKMENT

On the following road(s), embankments shall be keyed into the native slope in accordance with the Typical Embankment Key Detail Sheet.

<u>Road</u>	<u>Stations</u>	<u>Detail Sheet</u>
E-2000	86+35 – 86+65	See Detail Sheet
E-2004	20+00 – 21+00	See Detail Sheet

4-12 FULL BENCH CONSTRUCTION

On the following road(s), where side slopes exceed 45%, Purchaser shall use full bench construction for the entire subgrade width except as construction staked or designed. Purchaser shall haul waste material to the location specified in Clause 4-37

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
E-2004	6+37 - 27+30	Follow Construction Stakes

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-20 SUBGRADE DIMENSIONS FOR INTERSECTIONS

On the following road(s), the Purchaser shall construct the subgrade to the dimensions shown on the Intersection Detail.

<u>Road</u>	<u>Stations</u>
4+95 Spur	Per plan

4-21 TURNOUTS

Turnouts shall be intervisible with maximum of 1,000 feet between turnouts unless shown otherwise on drawings. Locations shall be adjusted to fit the final subgrade alignment and sight distances. Turnout locations shall be subject to written approval by the Contract Administrator.

4-22 TURNAROUNDS

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

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

The Purchaser shall construct ditches into the subgrade as specified on the Typical Section Sheet. Excavated slopes shall be consistent with Clause 4-5 Cut Slope Ratio. Ditches shall be constructed concurrently with construction of the subgrade.

4-27 DITCH WORK – MATERIAL USE PROHIBITED

On all roads, pulling ditch material across the road or mixing in with the road surface will not be allowed. Excavated material shall be disposed of as specified in Clause 4-36 through Clause 4-38.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Ditchouts shall be constructed at locations shown on the list below, and as needed to fit as built conditions. Ditchouts shall be constructed in a manner that diverts ditch water onto the forest floor and shall have excavation backslopes no steeper than a 1:1 ratio. L or R denotes ditchout left or ditchout right heading in.

<u>Road</u>	<u>Stations</u>
E-2003	9+75 R
E-2004	7+75 L

SUBSECTION WASTE MATERIAL (DIRT)

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

Waste material shall be deposited in the listed designated areas. The amount of material to be contained in a waste area shall be at the discretion of the Contract Administrator. Note: All amount values are estimated bank yards.

<u>Waste Area Location</u>	<u>Waste Generated From Road</u>	<u>Estimated Volume</u>	<u>Waste Area Permitted Vol.</u>
WA1	E-2000, E-2001, E-2002, E-2003, 2+10 Spur and 2+75 Spur	13000 CY	15000CY
WA2	E-2004 Sta 0+00 – 13+20	7000CY	10000CY
WA3	E-2004 Sta 14+10 – 18+00	4500CY	5000CY
WA4	E-2004 Sta 18+00 – 27+30	4500CY	5000CY
Total:	--	29000CY	35000CY

4-38 PROHIBITED WASTE DISPOSAL AREAS

Waste material shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

4-39 WASTE AREA COMPACTION

Excavated material may be deposited adjacent to the road prism on side slopes up to 45% if the waste material is compacted and free of debris. On side slopes of 45% or more, all excavation shall be end hauled or pushed to designated waste areas. All waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts, with the exception of side hill embankments too narrow to accommodate excavation equipment which may be placed by end-dumping or sidecasting until sufficiently wide to support the equipment.

SUBSECTION BORROW

4-45 SELECT BORROW

Select borrow shall consist of granular material, either naturally occurring or processed, and shall contain no more than 5% clay, organic debris, or trash by volume.

4-46 COMMON BORROW

Common borrow shall consist of soil, and/or aggregate that is non-plastic and shall contain no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines (passes the U.S. #40 sieve) in the sample cannot be rolled between the hand and a smooth surface into a thread at any moisture content.

4-47 NATIVE MATERIAL

Native material shall be excavated material free of organic debris, trash, and rocks greater than 12" in any dimension.

4-48 BORROW MATERIAL

Borrow material shall contain no more than 5% clay, organic debris, or trash by volume.

4-49 BORROW SOURCE

Borrow may be obtained from the listed borrow source(s). Development of the borrow source shall be in accordance with Borrow Source Detail.

<u>Source</u>	<u>Location</u>	<u>Yards</u>
E-2004	Road Prism	5000

4-50 BORROW APPLICATION

Borrow shall be applied in accordance with quantities shown below. Borrow shall be spread, shaped and compacted full width concurrent with hauling operations. (1ft lift)

<u>Road</u>	<u>Stations</u>	<u>Cubic Yards</u>	<u>Type / Comments</u>
2+10 Spur	0+00 – 2+10	210	Ballast Lift
E-2004	6+37 – 27+30	2300	Ballast Lift
1+70 Spur	0+00 – 1+70	180	Ballast Lift
1+75 Spur	0+00 – 1+75	190	Ballast Lift
2+50 Spur	0+00 – 2+50	270	Ballast Lift

SUBSECTION SHAPING

4-55 ROAD SHAPING

The road subgrade and surface shall be shaped as shown on the Typical Section Sheet. The subgrade and surface shape shall ensure runoff in an even, un-concentrated manner, and shall be uniform, firm, and rut-free.

4-56 DRY WEATHER SHAPING

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

SUBSECTION COMPACTION

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed 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 placement of rock.

4-62 DRY WEATHER COMPACTION

At any time of the year, 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.

4-64 WASTE MATERIAL COMPACTION

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

4-65 CULVERT BACKFILL COMPACTION

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

4-66 COMPACTION BY METHOD

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

SUBSECTION SUBGRADE REINFORCEMENT

4-70 SUBGRADE REINFORCEMENT

On the following road, the Purchaser shall provide and install geogrid as directed by the Contract Administrator. Geogrid shall be overlapped by a minimum of 2 feet at all joints. The geotextile fabric will then be covered with a minimum of 12 inches of compacted 4-inch jaw-run. Geogrid shall meet the specifications in Clause 10-9.

<u>Road</u>	<u>Stations</u>
4+95 Spur	2+20 – 3+80

SECTION 5 – DRAINAGE

5-4 PUNCHEON RESTRICTED

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

SUBSECTION CULVERTS

5-5 CULVERTS

Culverts shall be installed as part of this contract. Culverts shall be installed concurrently with subgrade work and shall be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the Culvert List. Culvert, downspout, and flume lengths shall be adjusted to fit as-built conditions and shall not terminate directly on unprotected soil. Culverts shall be new and meet the material specifications in Clauses 10-15 through 10-24.

5-11 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the Culvert List and Rock List that are not installed shall become the property of the State. Purchaser shall stockpile materials as directed by the Contract Administrator.

5-12 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and will be available for installation on any road listed in the TYPICAL SECTION SHEET as directed by the Contract Administrator. Unused pipes will be located as directed by C/A prior to contract expiration.

<u>Road</u>	<u>Size</u>
As Directed	Two 18-inch by 30ft culverts
By C/A	

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Installation shall be in accordance with the Typical Cross Drain Culvert Installation Detail, Typical Type Ns Np Culvert Installation Detail, the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures", and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe shall be installed in a manner consistent with the manufacturer's recommendations.

5-17 CROSS DRAIN SKEW AND SLOPE

Cross drains on road grades in excess of 3% shall 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. Where the cross drain is at the low point in the road, culverts shall not be skewed. Cross drain culverts shall 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 shall be installed with a depth of cover of not less than 18 inches of compacted depth over the top of the culvert at the shallowest point. Stream crossing culverts shall be installed with a depth of cover specified in the Engineer's design, Type Ns Np Typical Detail Sheet, or to the minimum depth recommended by the culvert manufacturer for the type of cover material over the pipe, whichever is greater.

SUBSECTION ENERGY DISSIPATERS

5-20 ENERGY DISSIPATERS

Energy dissipaters shall be installed to prevent erosion and are subject to approval by the Contract Administrator. Rock shall weigh at least 10 pounds and be placed by zero-drop-height method. Energy dissipater shall extend a minimum of ¾ foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet.

5-21 DOWNSPOUTS AND FLUMES

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 10 feet with 6-foot heavy-duty steel posts or 1 ½" X 3/16" angle iron, and fastened securely to the posts with No. 10 galvanized smooth wire, or bolted using minimum 5/16" bolts and 2 washers per bolt, in accordance with the Culvert Installation Typical Details Page.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

Catch basins shall be constructed to resist erosion. Approximate dimensions are 1-2 feet deep, 1-2 feet wide, and 2-4 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Headwalls shall be constructed in accordance with the Typical Cross Drain Culvert Installation Detail at all cross drain culverts that specify the placement of rock. Rock used for headwalls shall consist of oversize or quarry spall material. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets. Rock shall not restrict the flow of water into culvert inlets or catch basins. No end dumping of rock is allowed.

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

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. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using, or desire to use, the rock source(s), a joint operating plan shall be developed. All parties shall follow this plan. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Clover Rock Pit	T30R13WSec1	Shot-rock, Pit-run, Jaw-run, Oversize and Riprap
Mary Clark Rock Pit	T29R12WSec4	Pit-Run, 1.5" minus, oversize

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 remove no more than 300 cubic yards of 1.5" minus crushed rock, unless authorized by the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Quantity (yd³)</u>
Mary Clark	T29R12WSec4	300 yd ³

6-5 ROCK FROM COMMERCIAL SOURCE

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

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

All rock source development and use shall be in accordance with a written Rock Source Development and Reclamation Plan prepared by the State and included in this Road Plan. Rock source operations shall be conducted as directed by the Contract Administrator and in accordance with the plan. Upon completion of operations, the rock source shall be left in the condition specified in the Rock Source Development and Reclamation Plan, and approved in writing by the Contract Administrator. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the rock source.

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources shall be in accordance with the following unless otherwise specified in Rock Source Development and reclamation plan:

- Pit walls shall not be undermined or over-steepened. The maximum slope of the walls shall be consistent with recognized engineering standards for the type of material being excavated in accordance with the following table:

Material	Maximum Slope Ratio (Horiz.:Vert.)	Maximum Slope Percent
Sand	2:1	50
Gravel	1.5:1	67
Common Earth	1:1	100
Fractured Rock	0.5:1	200
Solid Rock	0:1	vertical

- Pit walls shall be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches shall be a minimum of 1.5 times the maximum length of the largest machine used.
- The surface of pit floors and benches shall be uniform and free-draining at a minimum 2% upslope gradient.

- All operations shall be carried out in compliance with all regulations of the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Block all vehicle access to the top of the pit faces.

6-14 DRILL AND SHOOT

Rock drilling and shooting shall meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale shall not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than five feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount shall be shot or broken up.
- The Purchaser shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- The Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days before any drilling (Form #M-126PAC).
- All operations shall be carried out in compliance with all regulations of the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.

6-15 REQUIRED ROCK SOURCE WORK

The following rock source work is required. Work is to be done according to the approved Rock Source Development And Reclamation Plan and as directed by the Contract Administrator.

<u>Site</u>	<u>Requirements</u>
Clover Pit	Strip, Drill and Shoot 0.5 acre for 10,000CY of usable rock and crush 5,000CY of 4" Jaw Run

6-16 TECHNICAL SPECIFICATIONS

DRILLING

The Purchaser shall drill in accordance to an approved Shot Plan. Drill depth shall not extend more than 5 feet below existing pit floor. The State’s Engineer and Purchaser shall jointly measure and determine drill depths, hole spacing and pattern and must be approved prior to loading explosives. During drilling operation, drill operator shall keep a bore log which includes the depth and location of each hole drilled. The State’s Engineer may ask to see the bore log during and after the drilling process has completed.

BLASTING

The Purchaser shall furnish and load appropriate explosives, detonators, and ignition sources in accordance to all State and Federal laws and in accordance to an approved Shot Plan.

DRILLING AND SHOOTING PLAN “SHOT PLAN”

The Purchaser shall submit a written drilling and shooting plan, including drawings, to the State’s Engineer, which must meet the approval of the State’s Engineer prior to the start of the drilling operation. The plan and drawing(s) shall include the following proposals: drill hole diameter, drill hole spacing, drill hole pattern, drill hole depth, any stemming depths, type and depth of explosive including amount per drill hole, detonator and ignition type, and proposed delay pattern. Any adjustment or modifications to the proposals during operations must be noted and resubmitted prior to loading of explosives.

WEATHER LIMITATIONS

When, in the opinion of the State’s Engineer, the weather is such that satisfactory results cannot be obtained in any phase of operation, Purchaser shall suspend operations until the weather is favorable. Before and during any suspension, Purchaser shall protect the work from damage or deterioration.

SUBSECTION ROCK MANUFACTURE

6-23 ROCK CRUSHING OPERATIONS

Rock crushing operations shall conform to the following specifications:

- Operations and placement of oversize material shall be conducted in or near the rock source site, as approved in writing by the Contract Administrator.
- The crushing operation shall be concluded within 60 working days from the time it begins.
- All testing and operations shall be performed in accordance with 6-24 Rock Crushing Compliance Procedure

6-24 ROCK CRUSHING COMPLIANCE PROCEEDURE

Phase II. Production

Step 3:

The Purchaser will continue periodic testing to ensure that rock stays in spec. Testing will take place according to the following schedule:

- After the first 500 yards
 - After every 2,000 yards thereafter.
- a) Any time a sample is out of spec, but is within 5%*, the Purchaser will be notified and a second sample will be taken later in the day. If the second sample meets specifications, the rock crushed during that day will be accepted. If the second sample also fails to meet spec, none of the rock crushed since the last acceptable test will be counted toward the amount to be crushed.
- b) Any time a sample is out of spec and is more than 5% off in any category, none of the rock crushed since the last acceptable test will be accepted and that rock must be kept separate from the stockpile. Return to Step 1.
- c) Purchaser is strongly encouraged to take their own samples regularly and keep their operations in spec to avoid unnecessary expenses.
- The 5% will be applied only to sieve specs for 2” to ¼” ; rock that is out of spec in larger sizes must be kept separate from the acceptable rock.

SUBSECTION ROCK GRADATIONS

6-29 1 ½-INCH MINUS CRUSHED ROCK

% Passing 1 ½" square sieve	100%
% Passing 1" square sieve	50 - 85%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	5% maximum

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

6-39 4-INCH JAW RUN ROCK

% Passing 4" in one dimension	100%
% Passing 3" square sieve	45 - 65%

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

6-42 CLEAN ROCK, SHOT BALLAST

Shot Ballast rock shall contain no more than 5% by weight of organic debris, dirt, and trash. Shot Ballast will meet the following specifications for rock gradation when placed on the subgrade:

- No more than 25% of the rock by weight shall exceed 8 inches in any dimension, and no rock shall be larger than 24 inches in any dimension. Rock may require processing to meet these requirements.

6-50 LIGHT LOOSE RIP RAP

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

<u>At Least/Not More Than</u> 20% / 90%	<u>Weight Range</u> 300 lbs. to 1 ton	<u>Size Range</u> 12" - 36"
--	--	--------------------------------

6-51 HEAVY LOOSE RIP RAP

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

<u>At Least/Not More Than</u> 70% / 100%	<u>Weight Range</u> 1 ton to 3 ton	<u>Size Range</u> 36" - 54"
---	---------------------------------------	--------------------------------

6-52 OVERSIZE

% Passing 8" square sieve	100%
% Passing 4" square sieve	0%

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

SUBSECTION ROCK MEASUREMENT

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths are defined as the compacted depth(s) using the compaction methods required in this Road Plan. Estimated quantities specified in the Rock List are estimated truck yards. 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.

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

Subgrade drainage installation including grading and compaction, shall be completed and approved in writing by the Contract Administrator, before rock application.

6-71 ROCK APPLICATION

Rock shall be applied in accordance with the specifications and quantities shown on the Rock List. Rock shall be spread, shaped, and compacted full-width concurrent with rock hauling operations. Rock shall be compacted in accordance with Compaction List, in lifts not to exceed 6 inches.

6-72 ROCK APPLICATION AFTER HAULING

On the following road(s), upon completion of all hauling operations, Purchaser shall apply 1 1/2" minus crushed rock in accordance with the quantities shown on the Rock List.

<u>Road</u>	<u>Stations</u>	<u>Amount</u>
FS-3100	As directed by C/A	100 yd ³
E-2500	As directed by C/A	100 yd ³
E-2000	As directed by C/A	200 yd ³

6-73 ROCK FOR WIDENED PORTIONS

Turnarounds, turnouts, and areas with curve widening shall have rock applied to the same depth and specifications as the traveled way.

6-78 ROCK FOR SPOT PATCHING

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

SECTION 7 – STRUCTURES

SUBSECTION SIGNS

7-2 SIGN INSTALLATION (NON-HIGHWAY)

The Purchaser shall be responsible for the purchase, installation, and maintenance of the following road signs. Signs shall be installed a minimum of 7 days before road work

begins. Signs shall be at least 2 feet in any direction, and shall be orange with black lettering.

<u>Road</u>	<u>Station</u>	<u>Sign</u>
E-2000	86+50, 94+25	Road Work Ahead

SUBSECTION ROAD SHOULDER GUARDS AND RETAINING WALL

7-3 The purchaser shall construct each structure listed on the table below.

Road	Stations	Structure Type
E-2000	38+09 – 38+41	Log Shoulder Guard
E-2000	55+98 – 56+22	Log Shoulder Guard
4+95 Spur	2+20 – 3+80	Retaining Wall and Fill

Description:

Embankment retention methods shall be provided to ensure that fill embankment is stable and contained. MSE, Block MSE, Bin wall or Hilfiker systems are types of pre-approved designs. Retained clean fill shall be select borrow and native ballast. Fill material shall be in accordance with specifications stated in Clause 4-45 and Clause 6-53, unless otherwise specified by design engineer. Anticipated material source is from either Copper or Winfield Pits. Purchaser **may construct wall using the attached plans** or may contract at purchaser's expense their own engineer and submit their plans for review. Other methods of embankment retention shall be submitted to the same location stated in **Clause 7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE** for consideration. Reports and plans will be approved or rejected within 10 working days of receipt.

All drawings and calculations for bearing capacity, foundation, retaining wall, and fill shall be prepared, stamped, and signed by a Registered Professional Engineer in the State of Washington.

7-4 STATE-SUPPLIED BLOCKS

State has 50 ultra style blocks available at the State's Winfield North pit which can be used for this project. Purchaser responsible to load & haul blocks from their present location if used.

SUBSECTION ACCEPTANCE

7-14 PRE-DESIGN WORK MEETING

Prior to any design work occurring a pre-work conference call shall occur to review the Road Plan requirements for the design and manufacture of the structures of keyed embankments and retaining wall.

7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE

The Purchaser shall prepare and submit three sets of complete design drawings and calculations for the superstructure and substructure, including footings, foundation and bank protection. All drawings and calculations shall be prepared, stamped, and signed by a Registered Professional Engineer in the State of Washington. The superstructure

shall be designed by a Professional Structural or Civil Engineer licensed in the state of manufacture. Drawings can be in either electronic or hard copy form and shall be no smaller than 11" X 17" sheets.

Submittals shall be sent to:

Department of Natural Resources
Attn.: Bill Mehl
411 Tillicum Lane
Forks, WA 98331
360-640-2363
Bill.mehl@dnr.wa.gov

Reports and plans will be accepted or rejected within 10 working days of receipt. Delays in work because of the possibility of rejection, revision, and resubmittal of documents are deemed a risk of the Purchaser and shall not be the basis for claims of additional compensation. Within 15 working days of final acceptance, Purchaser shall submit three complete sets of final plans. Any omissions to the plans shall be the responsibility of the Purchaser to correct and resubmit a finalized set of plans.

7-16 STRUCTURE ACCEPTANCE

The District Engineer or their designee will inspect the structure upon delivery. Acceptance will be issued if the structure meets all specifications and certifications.

7-17 INSTALLATION PRODUCTION SCHEDULE

Purchaser shall provide the District engineer or their designee with a production schedule showing projected completion dates of the following items before starting construction of structure(s). Production schedule shall include, but is not limited to:

- a) excavation
- b) placement of sills/abutments/footings/structure
- c) backfill compaction, rock application and compaction

7-18 INSTALLATION STAGE ACCEPTANCE

The Purchaser shall be responsible for ensuring that all materials and procedures used during construction comply with the design. Each stage of construction, according to the production schedule listed in Clause 7-17 Installation Production Schedule, shall be accepted in writing by the District Engineer, or their designee before starting construction on the next stage. The Purchaser shall notify the District Engineer or their designee in writing when each construction stage is complete.

7-19 INSTALLATION FINAL ACCEPTANCE

The Purchaser shall notify the District Engineer in writing when each structure is complete. Before final acceptance of the structure, the Purchaser shall supply a complete set of as-built plans stamped by the design engineer. As-built plans shall be submitted to the same location stated in Clause 7-15 Drawing And Calculation Review For Acceptance.

7-20 REQUIRED NOTIFICATION AND APPROVAL

Purchaser shall provide the District engineer or their designee 3 day notification prior to beginning road work on the 4+95 Spur. Purchaser shall receive approval for completed

road work on the 4+95 Spur roads from the District engineer or their designee prior to log haul on those roads.

SUBSECTION BRIDGE MAINTENANCE

7-30 BRIDGE MAINTENANCE

On the following road(s), bridge maintenance, as listed below, is required as part of this contract. All old bridge material shall be removed from state land by the Purchaser before the termination of the contract.

<u>Road</u>	<u>Station</u>	<u>Requirements</u>	<u>Detail Sheet</u>
E-2500	51+70	Replace delineator	See Typical

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall furnish and evenly spread a 3-inch layer of straw to all exposed soils at stream culvert installations. Soils shall not be allowed to sit exposed during any rain event.

SUBSECTION SLOPE STABILIZATION

8-10 STABILIZE SLOPES – ROCK APPLICATION

On the following road(s), Purchaser shall stabilize excavation and embankment slopes by applying rock as specified below. Rock must be set in place in conjunction with construction of the embankment. Rock must be applied in quantities specified in the Rock list and shown on the detail sheet. Rock must be set in place by machine.

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>	<u>Slope</u>	<u>Minimum depth</u>
E-2000	86+35 - 86+65	LL, riprap	1-1/2:1	Per Plan
E-2000	101+50 – 101+80	LL, riprap	1:1	Per Plan
E-2004	20+00 – 21+00	LL, riprap	1:1	Per Plan

SUBSECTION REVEGETATION

8-15 REVEGETATION

Purchaser shall grass seed and hay mulch all exposed soils including, but not limited to, stream culverts, waste areas, sidecast pull back areas, stream crossing removals, bridge installations, and other areas directed by the Contract Administrator. Revegetation of exposed soils shall be accomplished by manual dispersal of grass seed unless otherwise detailed in this Road Plan. Other methods of revegetation must be approved in writing by the Contract Administrator.

8-16 REVEGETATION SUPPLY

All seed, mulch, hay, matting, etc. will be provided by the Purchaser.

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

Purchaser shall provide a protective cover over the revegetated area. The protective cover may consist of, but not be limited to, such items as dispersed hay mulch 3" thick or jute matting.

8-19 ASSURANCE FOR SEEDED AREA

The Purchaser shall be responsible to ensure a uniform and dense crop of grass. The Purchaser shall reapply the seed and/or mulch in areas that have been damaged through any cause, before approval from the Contract Administrator. The Purchaser shall restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the seed and/or mulch at no additional cost to the state.

SUBSECTION SEED, FERTILIZER, AND MULCH

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all exposed soils at a rate of 60 pounds per acre of exposed soil.

<u>Seed Species</u>	<u>% by Weight</u>
• Perennial Ryegrass	40.00
• Creeping Red Fescue	40.00
• White Dutch Clover	10.00
• Colonial Bentgrass	10.00

Grass seed shall 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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

Post-haul maintenance shall be performed in accordance with the Forest Access Road Maintenance Specifications and as specified below.

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
-------------	-----------------	--------------------------------

All	All	Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator
FS-3100	As directed	Apply post haul rock as per Clause 6-72.
E-2500	As directed	Apply post haul rock as per Clause 6-72.
E-2000	As directed	Apply post haul rock as per Clause 6-72.

SUBSECTION POST-HAUL LANDING MAINTENANCE

9-10 LANDING DRAINAGE

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

9-11 LANDING EMBANKMENT

On all roads, landing embankments shall be sloped to original construction specifications.

SECTION 10 MATERIALS

SUBSECTION GEOTEXTILES

10-1 GEOTEXTILE FOR SUBSURFACE DRAINAGE

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

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	<Non-woven>
Apparent opening size	D 4751	<No. 80 max>
Water permittivity	D 4491	<0.3 sec ⁻¹ >
Grab tensile strength	D 4632	<160 lb>
Grab tensile elongation	D 4632	<>= 50%>
Puncture strength	D 6241	<310 lb>
Tear strength	D 4533	<50 lb>
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

Geotextiles shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for filtration. Woven slit-film geotextiles will not be allowed. Material shall 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

10-8 HIGH PERFORMANCE GEOTEXTILE

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for stabilization or reinforcement, and filtration. Material must be free of defects, cuts, and tears.

2 HIGH STRENGTH WOVEN

	<u>ASTM Test</u>	<u>Requirements</u>
Type	---	Woven
Apparent opening	D 4751	No. 40 max.
Water permittivity	D 4491	0.90 sec ⁻¹ min.
Pore size O ₅₀	D 6767	175 microns max.
Pore size O ₉₀	D 6767	273 microns max.
¹ Interaction Coeff.	D 6706	0.89 (for sand and gravel) min.
Tensile Strength	D 4595	Min. Mach. Direction 1980 lb./ft. @ 5% strain
Tensile Strength	D 4595	Min. Cross-Mach. Direction 2100 lb./ft. @ 5% strain
Ultra Violet	D 4355	90% Strength Retained after 500 hours exposure

SUBSECTION CULVERTS

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts shall meet AASHTO M-294 specifications. Culverts shall be Type S – double walled with a corrugated exterior and smooth interior.

10-20 FLUME AND DOWNPOUT

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

10-21 METAL BAND

Metal coupling and end bands shall meet the AASHTO specification designated for the culvert and shall have matching corrugations. On culverts 24 inches and smaller, bands shall have a minimum width of 12 inches. On culverts over 24 inches, bands shall have a minimum width of 24 inches.

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

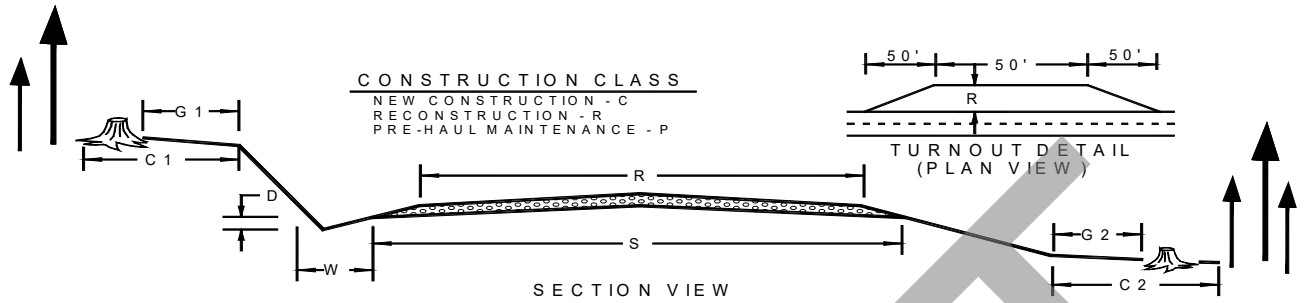
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

10-24 GAGE AND CORRUGATION

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

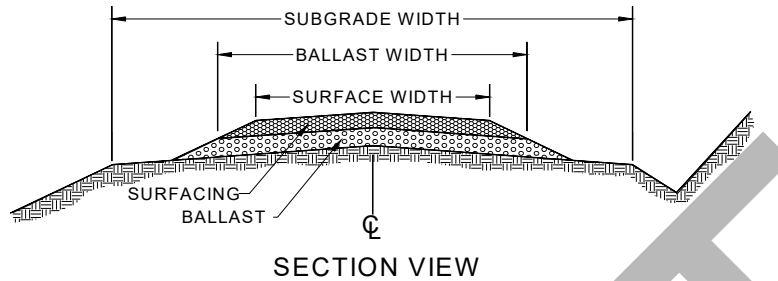
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 2/3" X 1/2"
24" to 48"	14 (0.079")	2 2/3" X 1/2"
54"	12	5" X 1"
60" +	10	5" X 1"

TYPICAL SECTION SHEET



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
FS-3100	0+00	116+75	P		14'	3"	2'	1'				
E-2500	0+00	81+45	P		14'	3"	2'	1'				
E-2000	0+00	94+25	P		14'	3"	2'	1'				
E-2000	94+25	115+65	P		14'	3"	2'	1'				
E-2001	0+00	5+45	P		14'	3"	2'	1'				
E-2002	0+00	4+20	P		14'	3"	2'	1'				
E-2003	0+00	9+75	P		14'	3"	2'	1'				
2+10	0+00	2+10	C	17'	14'	3"	2'	1'	3'	5'	10'	5'
E-2004	0+00	6+37	P		14'	3"	2'	1'				
E-2004	6+37	27+30	C	17'	14'	3"	2'	1'	3'	5'	10'	5'
4+95 Spur	2+20	4+95	C	17'	14'	3"	2'	1'	3'	5'	10'	5'
1+70 Spur	0+00	1+70	C	17'	14'	3"	2'	1'	3'	5'	10'	5'
1+75 Spur	0+00	1+75	C	17'	14'	3"	2'	1'	3'	5'	10'	5'
2+50 Spur	0+00	2+50	C	17'	14'	3"	2'	1'	3'	5'	10'	5'
E-2005	0+00	3+00	P		14'	3"	2'	1'	14'	3"	2'	1'
4+95 Spur	2+20	4+95	C	17'	14'	3"	2'	1'	3'	5'	10'	5'

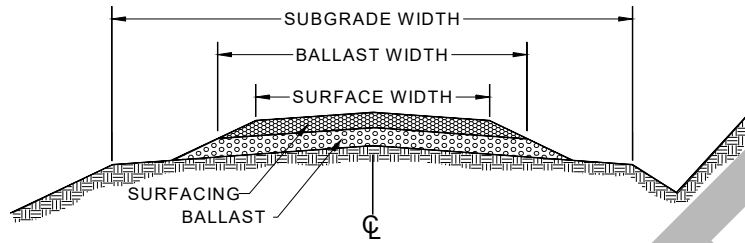
ROCK LIST SHEET



1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Clover Pit Jaw-run, 2: Clover Pit Oversize, 3: Clover Pit Crush, 4: Mary Clark Pit-run, 5: Mary Clark 1.5"minus, 6: Mary Clark Oversize

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd ³ /sta)	Pitrun SUBTOTAL(yd ³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd ³ /sta)	Crushed Subtotal(yd ³)	Oversize/ Rip rap SOURCE	Oversize/Rip Rap Quantity(yd ³)
FS-3100															
Misc	0+00	116+75							5				200		
E-2500															
Misc	0+00	81+15							5				200		
E-2000															
Misc	0+00	94+25							5				300		
Post-Haul	0+00	94+25							5				100		
Culvert Install	56+90	57+45		4				10	5				20	1	1
Culvert	58+85			4				20	5				1		
Landing	63+70			4				50							
Culvert	67+80			4				20							
Landing	79+15			4				20							
Road Repair	86+35	86+65												1	130
Lift	94+25	115+65							1	12	6	35	750		
Landing	94+80								1				30		
Culvert	97+80								1				20		
Landing	98+60								1				30		
Totals:								120					1651		131

ROCK LIST SHEET CONTINUED

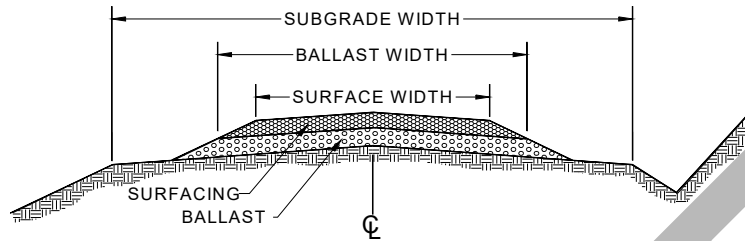


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Clover Pit Jaw-run, 2: Clover Pit Oversize, 3: Clover Pit Crush, 4: Mary Clark Pit-run, 5: Mary Clark 1.5"minus, 6: Mary Clark Oversize

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd³)
E-2000															
Culvert	101+35								1				20		
French Drain	101+50	101+80							3				30		
Buttress	101+50	101+80							1				30	2	5
Landing	102+35								1				30		
Culvert	104+35								1				20		
Culvert	106+40								1				20		
Culvert	110+90								1				20		
Culvert	112+90								1				20		
Landing	113+85								1				30		
E-2001															
Lift	0+00	05+45	17	4	12	6	35	200							
Landing	0+75			4				30							
Turnaround	5+45			4				30							
E-2002															
Lift	0+35	04+20	17	4	12	8	70	270							
Spot Patch	0+50			4				10							
Culvert Install	0+75								3				20		
Landing	3+50			4				50							
Totals:								590					110		5

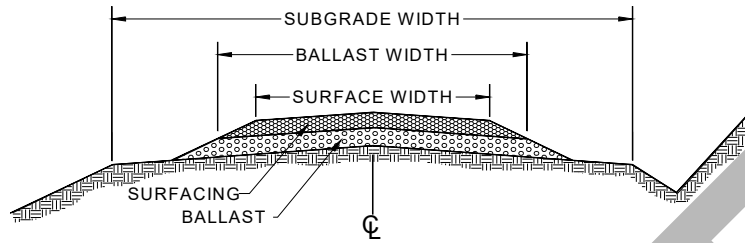
ROCK LIST SHEET CONTINUED



1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Clover Pit Jaw-run, 2: Clover Pit Oversize, 3: Clover Pit Crush, 4: Mary Clark Pit-run, 5: Mary Clark 1.5"minus, 6: Mary Clark Oversize

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd ³ /sta)	Pitrun SUBTOTAL(yd ³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd ³ /sta)	Crushed Subtotal(yd ³)	Oversize/ Rip Rap Source	Oversize/Rip Rap Quantity(yd ³)
E-2003															
Lift	0+20	2+50		4	12	6	24	55							
Spot Patch	0+75	1+50		4				100							
Landing	2+20			4				30							
Lift	2+50	6+80		4	12	12	70	310							
Spot Patch	2+75			4				10							
Spot Patch	3+65			4				10							
Landing	4+40			4				10							
Culvert Install	5+00			4				50							
Maintenance	5+50	6+80		4				70							
Landing	7+30			4				70							
2+10 Spur															
Lift	0+00	2+10		4	12	12	70	85							
Landing	2+10			4				30							
E-2004															
Lift	0+00	6+37							1	12	6	35	230		
Culvert Install	0+30								1				20		
Culvert Install	4+00								1				20		
Landing	5+00								1				30		
Lift	6+37	27+30							1	12	14	85	1700		
Totals:								730					2000		

ROCK LIST SHEET CONTINUED



SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Clover Pit Jaw-run, 2: Clover Pit Oversize, 3: Clover Pit Crush, 4: Mary Clark Pit-run, 5: Mary Clark 1.5"minus, 6: Mary Clark Oversize

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity (yd ³ /sta)	Pitrun SUBTOTAL (yd ³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity (yd ³ /sta)	Crushed Subtotal (yd ³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity (yd ³)
E-2004															
Culvert Install	8+56								1				20		
Culvert Install	12+12								1				20		
Culvert Install	16+45								1				20		
Landing	18+30								1				20		
Embankment	20+00	21+0							1				600	2	200
Landing	25+55								1				20		
Landing	27+30								1				20		
1+70 Spur															
Lift	0+00	1+70							1	12	14	85	145		
Landing	1+70								1				20		
1+75 Spur															
Lift	0+00	1+75								12	14	85	150		
Landing	1+75												20		
4+95 Spur															
Fill	2+20	3+80							1				800		
Lift	3+80	4+95							1	14	14	95	110		
Landing	4+95								1				30		
Contingency Pipes									1				40		
Totals:												1945	200		

ROCK LIST SHEET GRAND TOTAL

Source	Quantity (yd ³)
1: Clover Jaw-Run	4,895
2: Clover Oversize	205
3: Clover Crush	30
4: Mary Clark Pit-Run	1,540
5: Mary Clark Crush	830

DRAFT

CULVERT LIST CULVERT LIST Continued

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP - OUTLET (cy)	BACKFILL MATERIAL	NOTES
E-2000	0+25	24						Culvert Maint. Clean inlet and outlet
E-2000	3+30	18						Culvert Maint. Clean inlet
E-2000	7+10	18						Culvert Maint. Clean inlet and outlet
E-2000	8+90	48						Culvert Maint. Clean inlet and outlet
E-2000	13+30	15						Culvert Maint. Clean inlet and outlet
E-2000	15+95	18						Culvert Maint. Clean inlet
E-2000	20+05	15						Culvert Maint. Clean inlet and outlet
E-2000	25+85	24						Culvert Maint. Clean inlet
E-2000	29+55	15						Culvert Maint. Clean inlet
E-2000	35+55	15						Culvert Maint.
E-2000	39+15	18						Culvert Maint. Replace flume
E-2000	46+35	24						Culvert Maint. Clean inlet
E-2000	50+70	18						Culvert Maint. Clean inlet
E-2000	53+20	18			1			Culvert Maint. Clean inlet
E-2000	55+00	18						Culvert Maint. Clean inlet
E-2000	56+90	18	30			1	JR	New cross-drain culvert
E-2000	58+85	24	30			1	JR	Culvert Replacement
E-2000	61+70	18						Culvert Maint. Clean inlet
E-2000	65+25	42						Culvert Maint. Clean inlet
E-2000	67+80	18	30				JR	Culvert Replacement
E-2000	71+25	18						Culvert Maint. Clean inlet and outlet
E-2000	74+25	18						Culvert Maint. Clean inlet
E-2000	88+90	18						Culvert Maint. Clean inlet and outlet
E-2000	97+80	18	30				JR	New cross-drain culvert
E-2000	101+35	18	30				JR	New cross-drain culvert
E-2000	101+50	18	30				JR	New French drain culvert
E-2000	104+35	18	30				JR	New cross-drain culvert
E-2000	106+40	18	30				JR	New cross-drain culvert

All rip rap shall be Oversize unless specified in the Rock List, or in the field.
All backfill shall be native material (NT) unless specified otherwise. CR= 1 ¼" - crushed rock,
PR = pit run.

CULVERT LIST CULVERT LIST Continued

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP - OUTLET (cy)	BACKFILL MATERIAL	NOTES
E-2000	110+90	18	30				JR	New cross-drain culvert
E-2000	112+90	18	30				JR	New cross-drain culvert
E-2002	0+75	18	30				JR	New cross-drain culvert
E-2003	5+00	18	30				JR	New cross-drain culvert
E-2003	8+00	18	30				JR	New cross-drain culvert
E-2004	0+30	18	30				JR	New cross-drain culvert
E-2004	4+00	18	30				JR	New cross-drain culvert
E-2004	8+45	18	30				JR	New cross-drain culvert
E-2004	11+40	18	30				JR	New cross-drain culvert
E-2004	15+02	18	30				JR	New cross-drain culvert
E-2004	17+55	18	30				JR	New cross-drain culvert
E-2004	20+70	12	30				JR	New French drain culvert
2+50 Spur	0+95	18	30				JR	New cross-drain culvert
4+95 Spur	2+20	6	60					Perforated Pipe
4+95 Spur	3+00	6	100					Perforated Pipe
4+95 Spur	2+40	6	140					Perforated Pipe
Contingency		18	30				PR	Contingency Pipe
Contingency		18	30				PR	Contingency Pipe

All rip rap shall be Oversize unless specified in the Rock List, or in the field.
All backfill shall be native material (NT) unless specified otherwise. CR= 1 ¼" - crushed rock,
PR = pit run.

COMPACTION LIST

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

SUMMARY - Road Development Costs														
SALE NAME:	Blue View	CONTRACT#:	30-103762	REGION:	Olympic	DISTRICT:	Olympic							
LEGAL DESCRIPTION:	T 30NRI 3WSec. 01													
ROAD NAME:	2+10	E-2004	1+70 Spur	1+75 Spur	2+50 Spur	4+95 Spur	FS-3100	E-2500	E-2000	E-2001	E-2002	TOTAL:	SHEET #2-4	TOTAL
ROAD TYPE:	Construction	Construction	Construction	Construction	Construction	Construction	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul			
NUMBER OF STATIONS:	2	21	2	2	3	1	117	81	116	5	4	353.65	334.34	
SIDE SLOPE:	30%	50%	30%	30%	30%	30%	0%	0%	0%	0%	0%			0%
CLEARING AND GRUBBING:	\$492	\$4,920	\$398	\$410	\$86	\$5,003	\$0	\$0	\$0	\$0	\$0	\$11,809	\$0	\$0
ROAD BRUSHING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$148	\$0	\$148	\$0	\$0
EXCAVATION AND FILL:	\$593	\$121,018	\$480	\$494	\$706	\$311	\$0	\$0	\$0	\$0	\$0	\$123,603	\$0	\$0
ROAD GRADING:	\$0	\$0	\$0	\$0	\$0	\$0	\$2,421	\$1,689	\$2,399	\$113	\$0	\$6,622	\$6,065	\$0
DITCH CLEANING/CONSTRUCTION:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:	Ballast: 3,500	147	1,785	165	169	213	1,023	0	0	0	0	3,500	0	0
	Includes Jaw run	\$1,098	\$13,138	\$1,206	\$1,284	\$1,677	\$8,773	\$0	\$0	\$0	\$0	\$27,175	\$0	\$0
	Surface: 100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Over-size: 200	0	200	0	0	0	0	0	0	0	0	200	0	0
		0	1,572	0	0	0	0	0	0	0	0	1,572	0	0
CULVERTS AND FLUMES:	\$0	\$7,020	\$0	\$0	\$780	\$550	\$0	\$0	\$2,580	\$0	\$780	\$11,710	\$1,560	\$0
STRUCTURES:	\$0	\$5,000	\$0	\$0	\$0	\$50,000	\$0	\$0	\$5,000	\$0	\$0	\$60,000	\$0	\$0
MISC. EXPENSES:	\$12	\$123	\$10	\$10	\$15	\$6	\$683	\$476	\$12,925	\$32	\$409	\$14,701	\$3,280	\$0
OVERHEAD:	\$176	\$12,223	\$168	\$176	\$301	\$4,171	\$279	\$195	\$2,061	\$26	\$107	\$20,884	\$1,252	\$0
TOTAL COSTS:	\$2,371	\$165,013	\$2,262	\$2,375	\$4,064	\$69,815	\$3,384	\$2,361	\$4,965	\$320	\$1,296	\$278,225	\$13,201	\$0
COST PER STATION:	\$1,129	\$7,858	\$1,330	\$1,357	\$1,626	\$63,468	\$29	\$29	\$216	\$59	\$309	\$787	\$39	\$0
MOBILIZATION:			\$13,700											
ROAD DEACTIVATION AND ABANDONMENT COSTS:			\$0											
Pit Work			\$100,000											
NOTE: This appraisal has no allowance for profit and risk.														
Sheet 1 of 2														
Plans to be furnished by:	Griffioen													

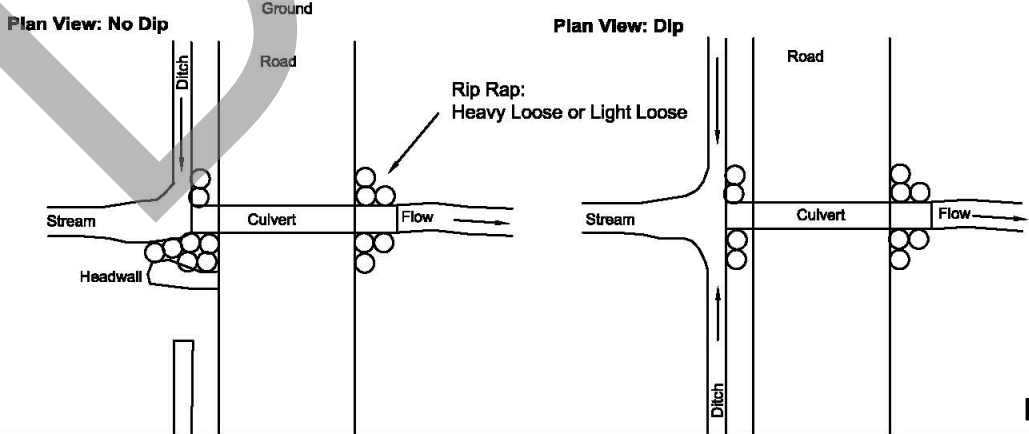
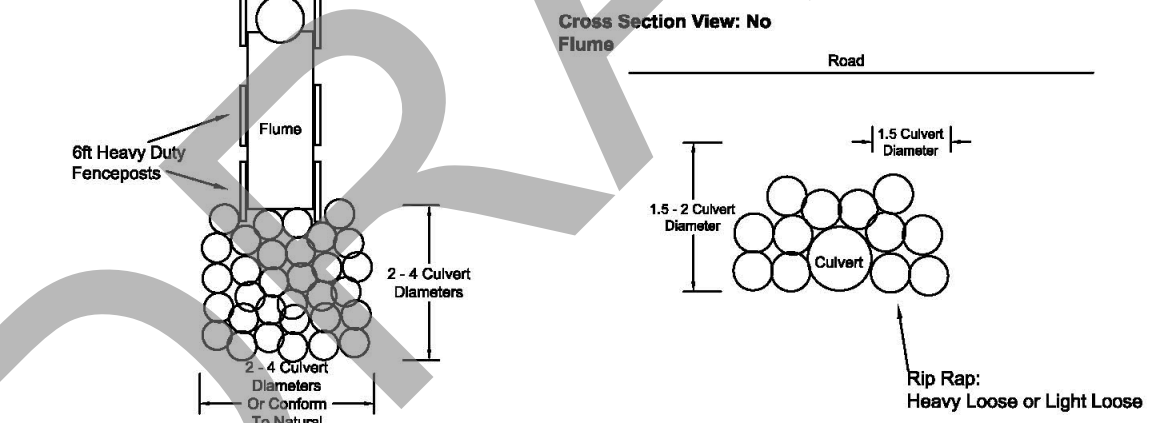
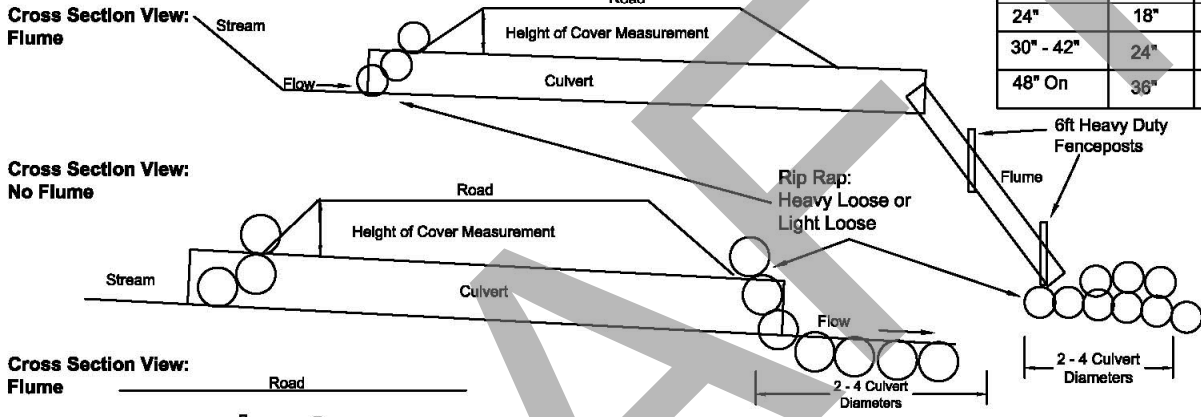
Road Standard	Const.	Reconst.	Prehaul	Posthaul	TOTAL (All Roads) =
Total Costs =	\$250,467	\$0	\$40,302	\$14,357	\$413,126
Total Sta. =	30	0	340	340	SALE VOLUME MBF = 3,162
Cost per Sta. =	\$8,307	\$0	\$119	\$42	TOTAL COST PER MBF = \$130.65
Completed by:	Griffioen				TOTAL COST PER STATION = \$600.48
					Date: 12/6/2023

SUMMARY - Road Development Costs							
SALE NAME:	Blue View	CONTRACT#:	30-103762	REGION:	0	DISTRICT:	Olympic
LEGAL DESCRIPTION:		T30NR13W Sec. 01					
ROAD NAME:		E-2003	E-2004	FS-3100	E-2500	E-2000	
ROAD TYPE:		Prehaul	Prehaul	Posthaul	Posthaul	Posthaul	
NUMBER OF STATIONS:		10	6	117	81	94	
SIDESLOPE:		0%	0%	0%	0%	0%	
CLEARING AND GRUBBING:		\$0	\$0	\$0	\$0	\$0	
ROAD BRUSHING:		\$0	\$0	\$0	\$0	\$0	
EXCAVATION AND FILL:		\$0	\$0	\$0	\$0	\$0	
ROAD GRADING:		\$0	\$0	\$2,421	\$1,689	\$1,955	
DITCH CLEANING/CONSTRUCTION:		\$0	\$0	\$0	\$0	\$0	
ROCK TOTALS (Cu. Yds.)/ROCK COS		0	0	0	0	0	
Ballast:		0	0	0	0	0	
		0	0	0	0	0	
Surface:		0	0	0	0	100	CY
		\$0	\$0	\$0	\$0	\$1,044	
Oversize:		0	0	0	0	0	
		0	0	0	0	0	
CULVERTS AND FLUMES:		\$1,560	\$0	\$0	\$0	\$0	
STRUCTURES:		0	0	0	0	0	
MISC. EXPENSES:		\$949	\$620	\$683	\$476	\$551	
OVERHEAD:		\$226	\$56	\$341	\$238	\$391	
TOTAL COSTS:		\$2,735	\$676	\$3,446	\$2,404	\$3,941	
COST PER STATION:		\$280	\$106	\$30	\$30	\$42	
Sheet 2 of 2							
						Total	
						Costs	\$13,201
						Stations	308.57
						Cost/station	\$42.78

Typical Type Ns, Np Culvert Installation Detail Sheet.

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

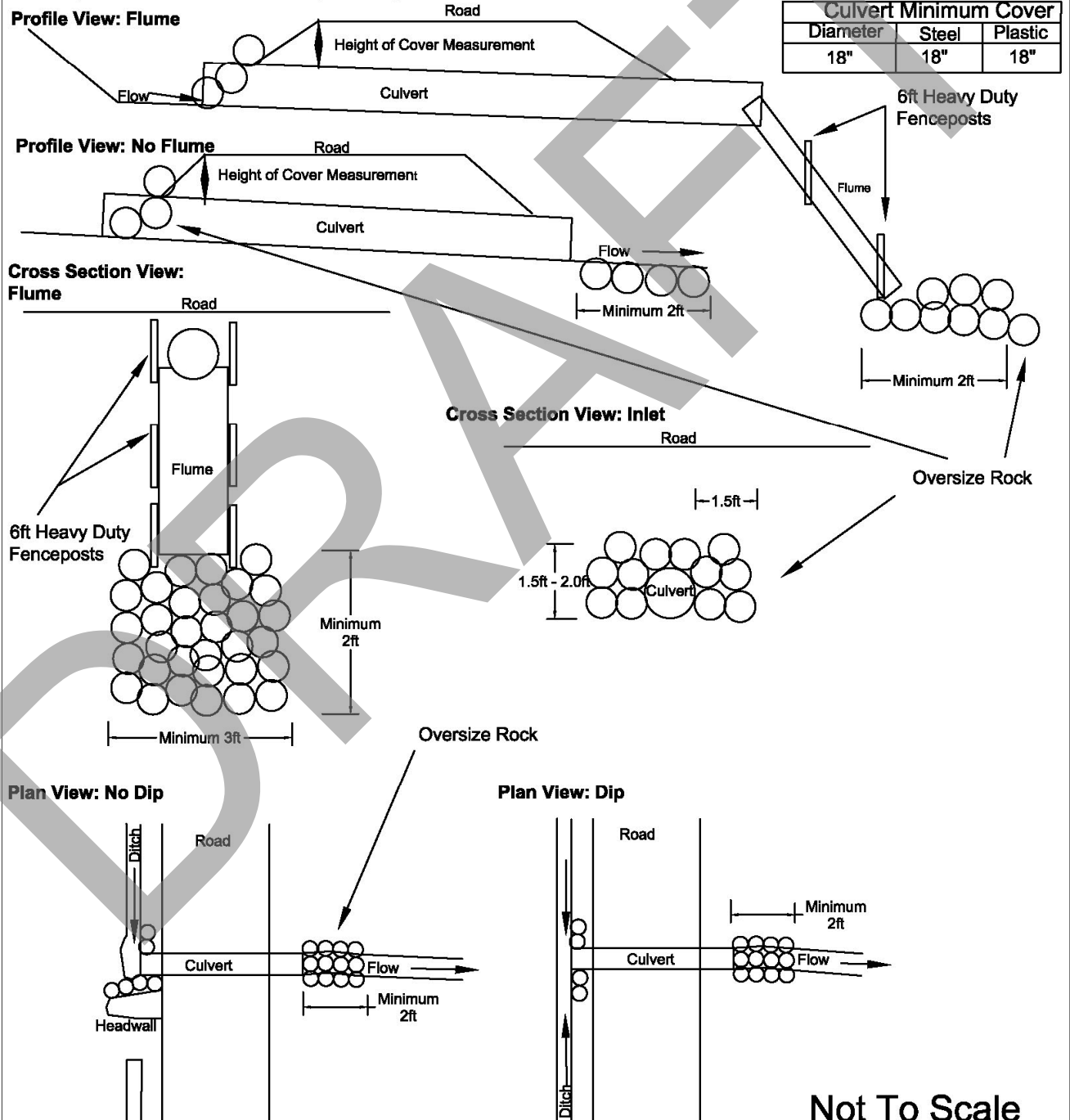
Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"



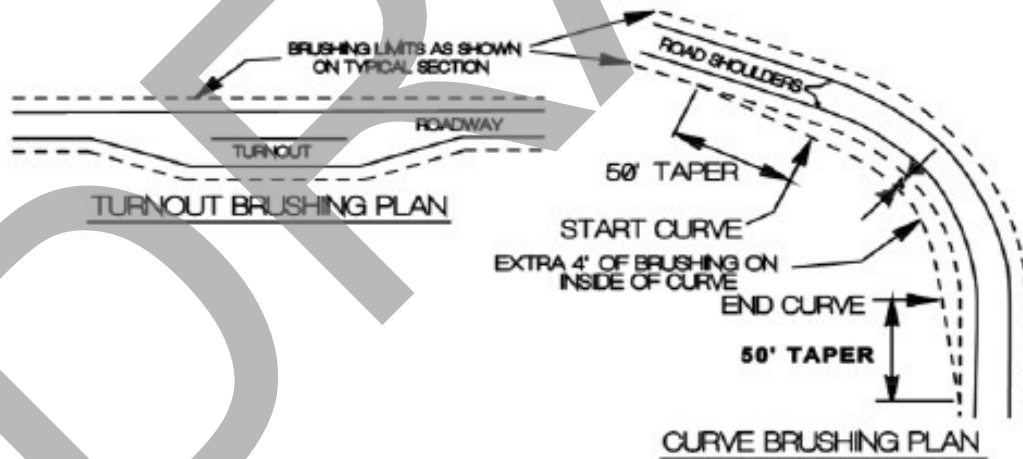
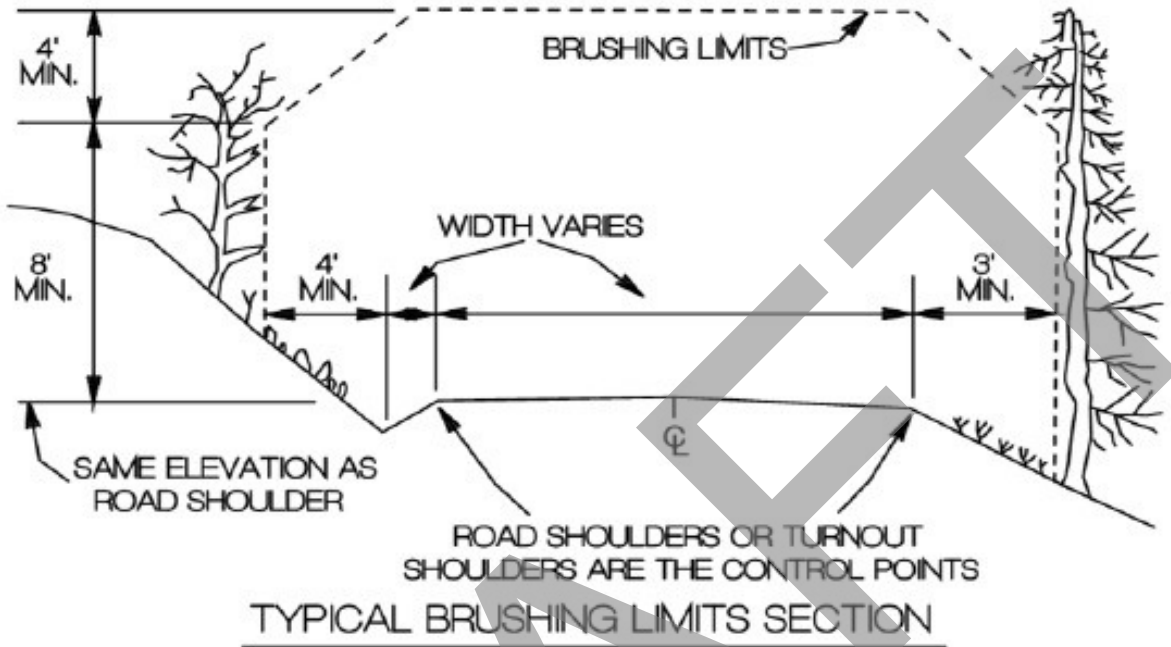
Not To Scale

Typical Cross Drain Culvert Installation Detail Sheet

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

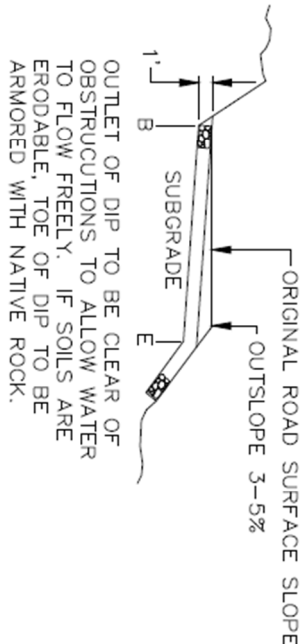
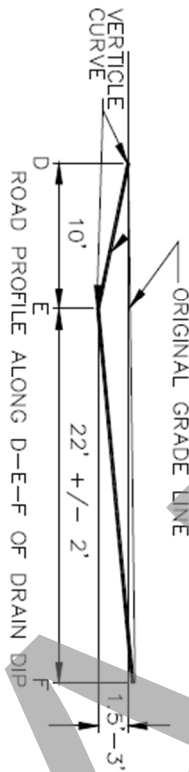
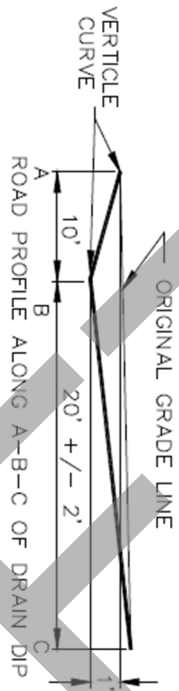


BRUSHING DETAIL



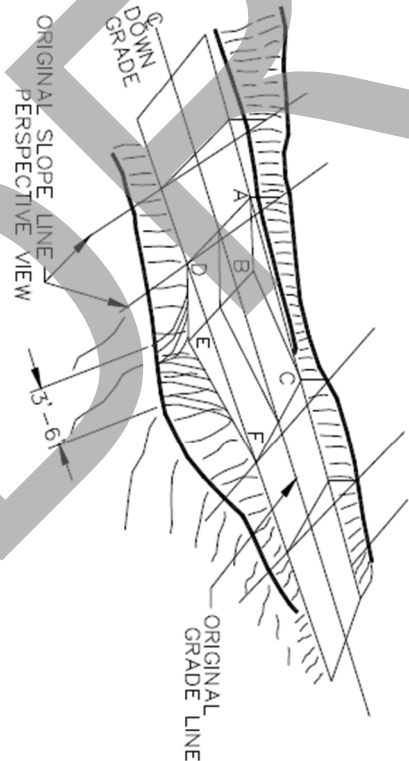
- 1) ALL VEGETATION WITHIN THE BRUSHING LIMITS SHALL BE CUT TO WITHIN 8' OF THE GROUND, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- 2) ALL BRUSH, TREES, LIMBS, ETC. SHALL BE REMOVED FROM THE ROAD SURFACE.
- 3) ALL BRUSH, TREES, LIMBS, ETC. THAT MAY RESTRICT THE FLOW OF WATER SHALL BE REMOVED FROM THE DITCH LINE.
- 4) ALL DEBRIS THAT MAY ROLL OR MIGRATE INTO THE DITCHLINE SHALL BE REMOVED.

ROLLING DIP DETAIL

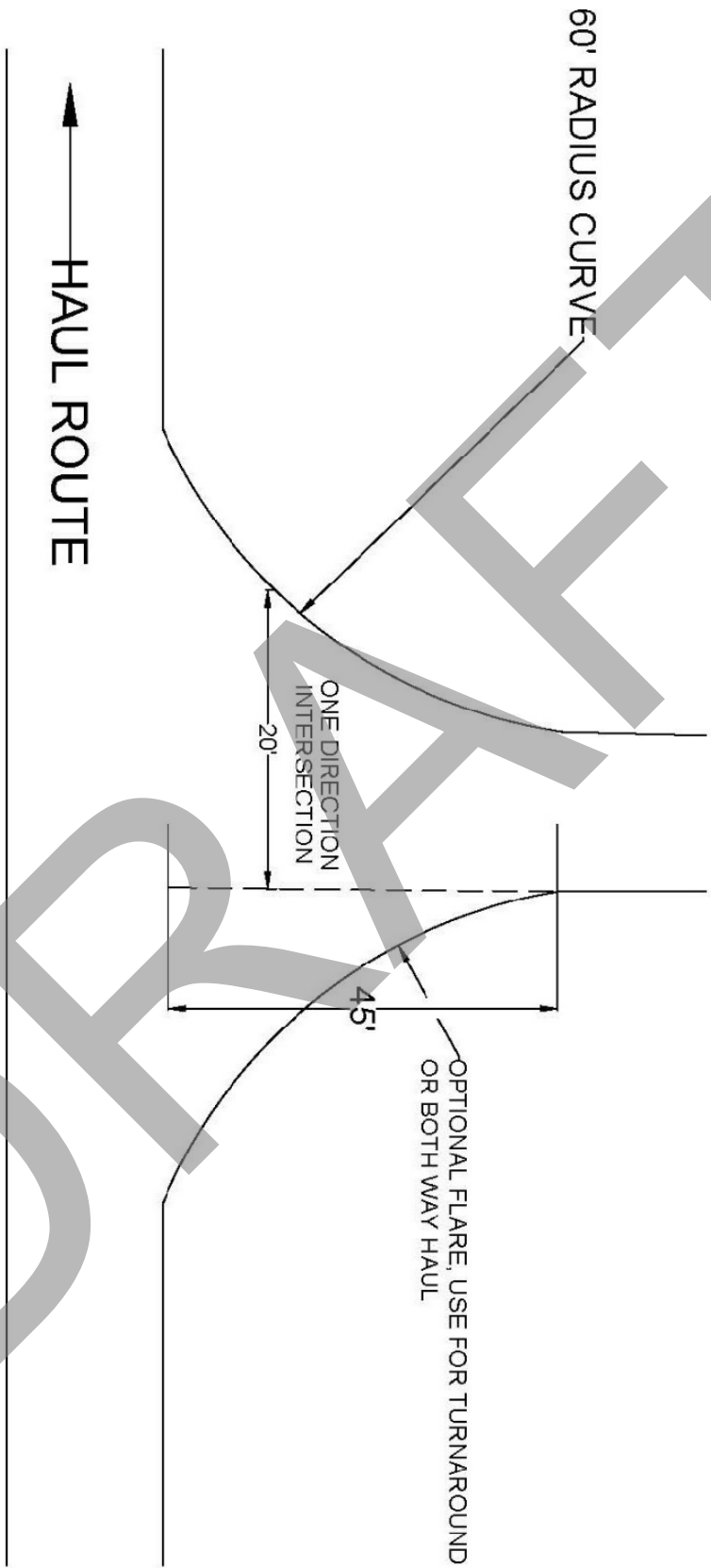


OUTLET OF DIP TO BE CLEAR OF OBSTRUCTIONS TO ALLOW WATER TO FLOW FREELY. IF SOILS ARE ERODABLE, TOE OF DIP TO BE ARMORED WITH NATIVE ROCK.

NOTE: PLAN OF DIP SHOWN IS FOR OUTSLOPED ROLLING DIP. DIPS MAY BE EITHER INSLOPED OR OUTSLOPED. WHEN INSLOPED, DIPS SHALL DRAIN FREELY INTO DITCHES OR CULVERT INLETS, WHEN OUTSLOPED, THEY SHALL DRAIN FREELY ONTO NATURAL GROUND. WHERE SOILS ARE ERODABLE, OUTLET SHALL BE ARMORED WITH NATIVE ROCK. THE MINIMUM CROSS GRADE FROM "B" TO "E" IS 4% GREATER THAN THE ROAD SURFACE SLOPE. SKEW LINE B-E TO FIT LOW POINT IN DRAW, IF LOCATED IN NATURAL DRAIN.

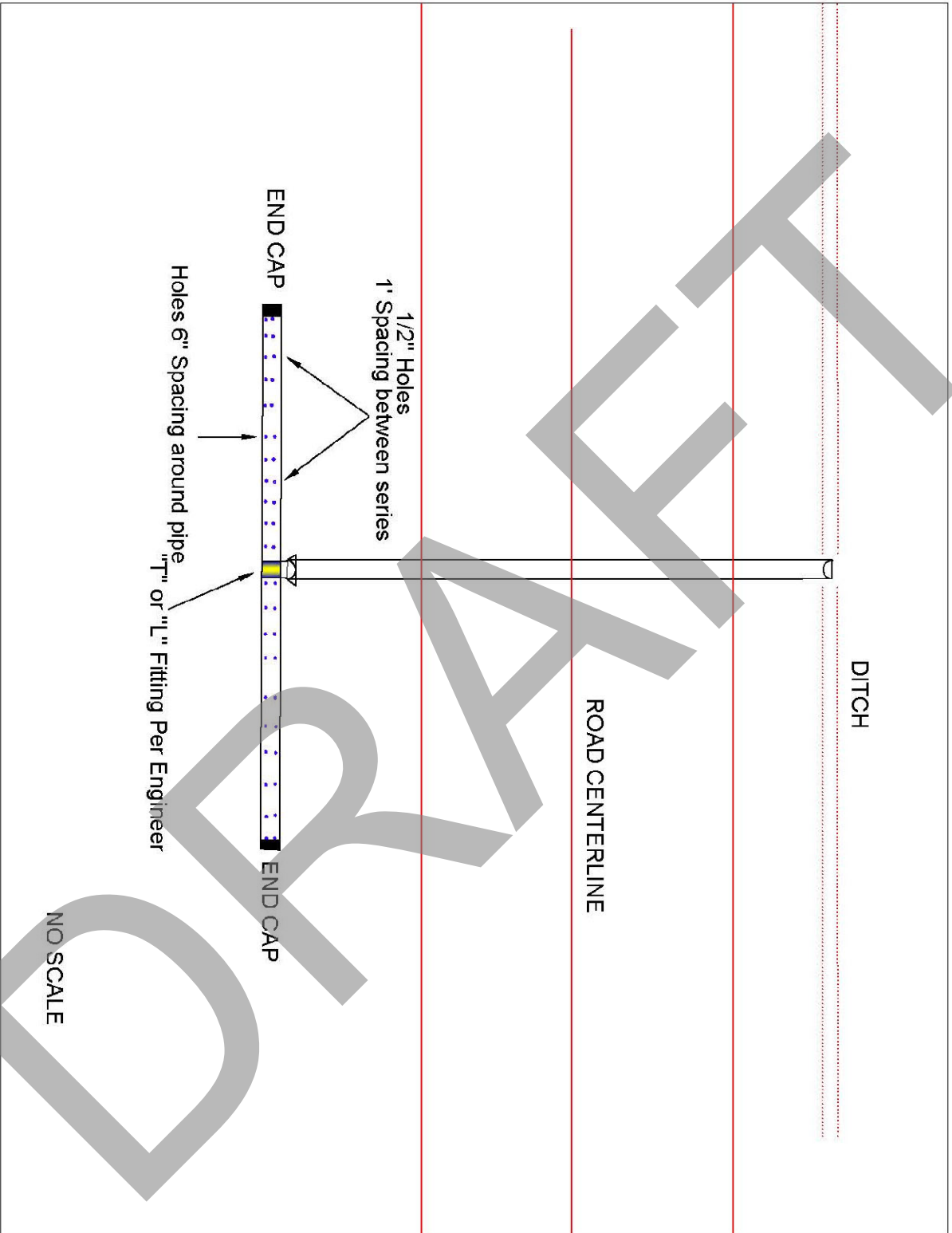


TYPICAL INTERSECTION



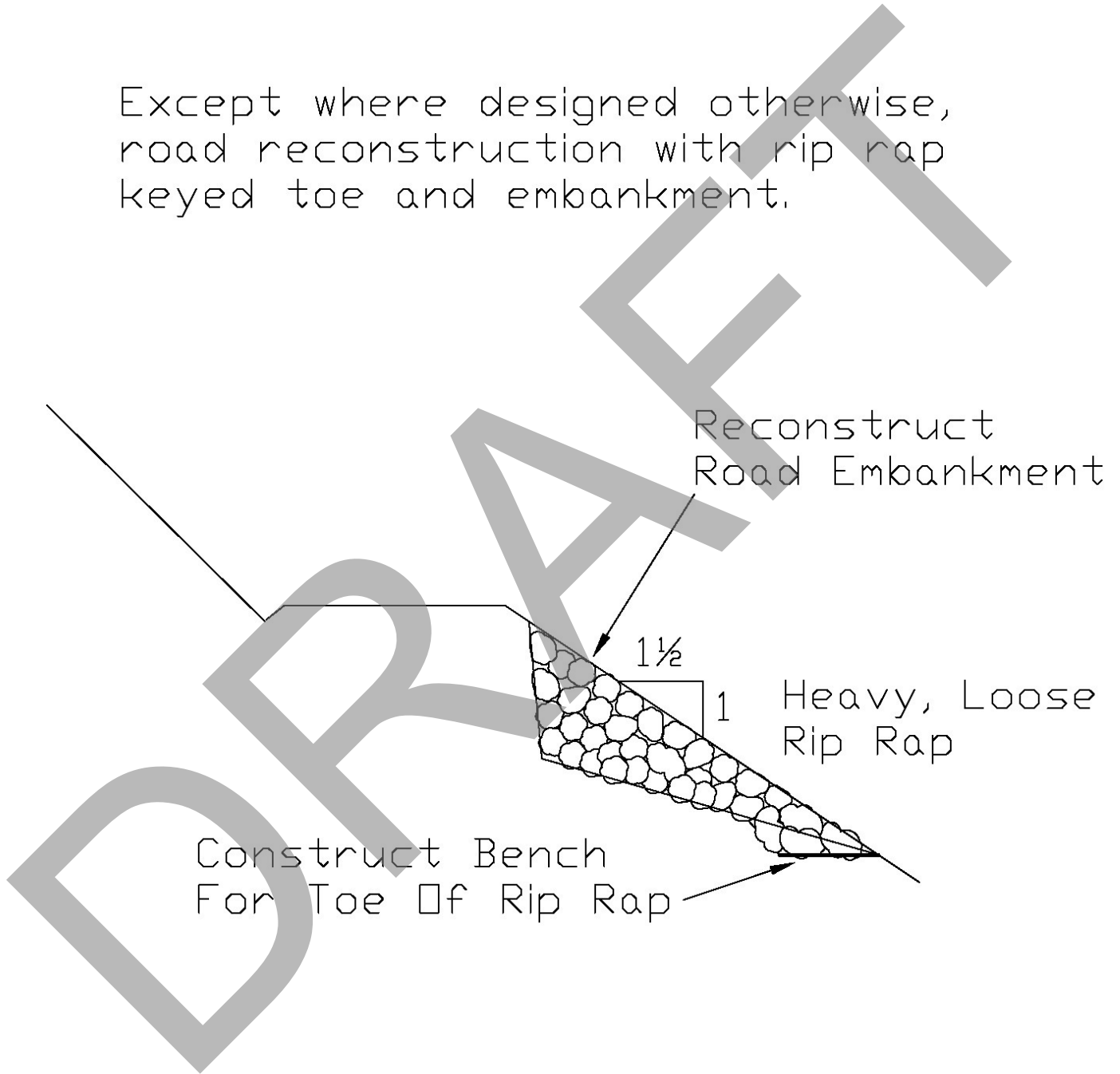
NOT TO SCALE

TYPICAL PERFORATED PIPE INSTALLATION



Typical Embankment Key Detail

Except where designed otherwise, road reconstruction with rip rap keyed toe and embankment.



FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the cut slope/fill slope ratios. Remove slides from ditches and the roadway. Repair fill-failures in accordance with Clause 4-6 Embankment Slope Ratio, and with material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

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

Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain culvert headwalls to a level slightly below the road shoulder with material that will resist erosion. This is to allow for culverts that are overtopped to keep the water in the ditchline.
- Maintain energy dissipaters at culvert outlets with non-erodible material or rock.
- Keep ditches, culverts, and other drainage structures clear of obstructions and functioning as intended.
- Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This shall be done even during periods of inactivity.

Preventative Maintenance

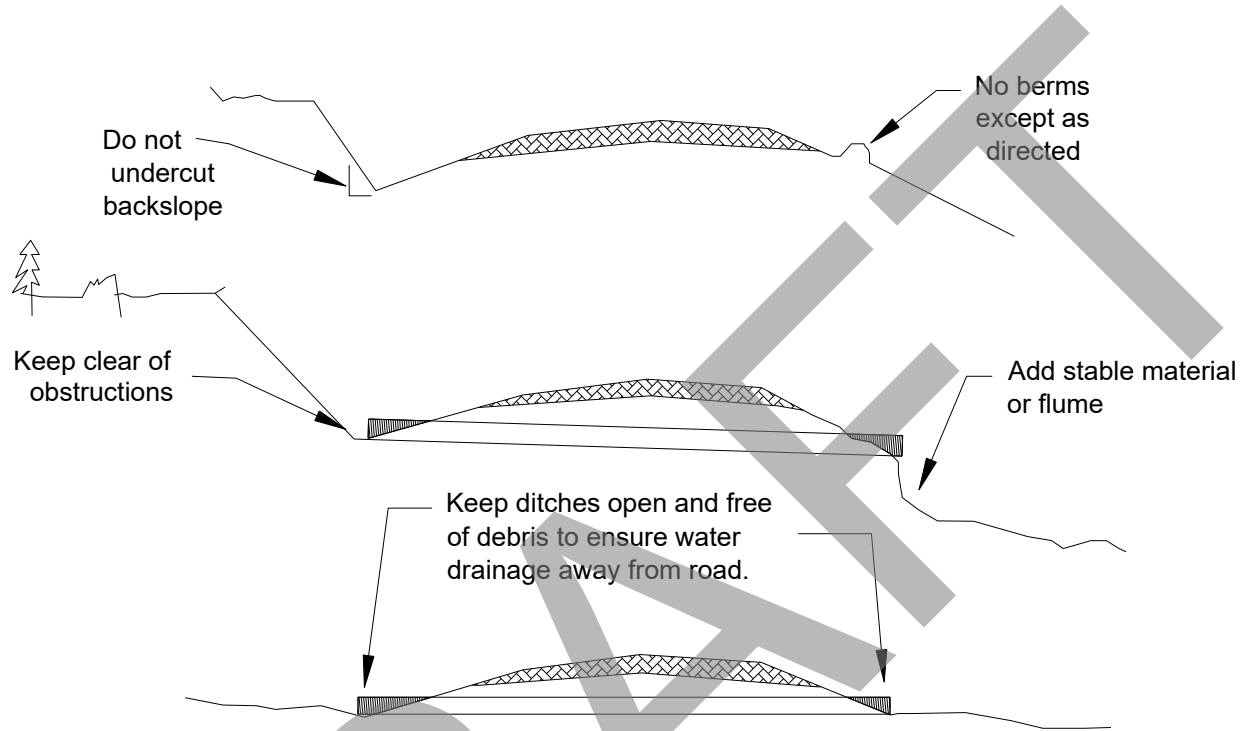
Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

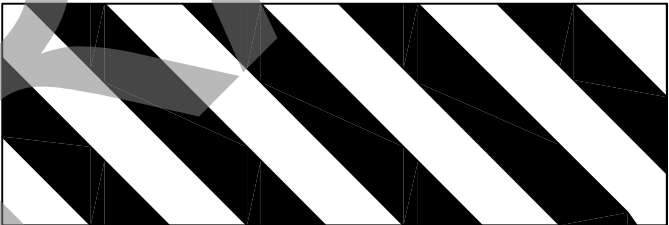
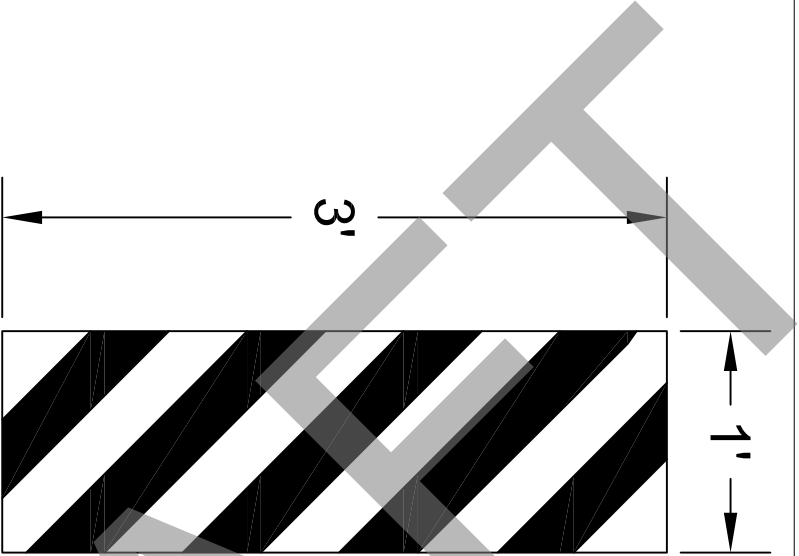
At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

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



TYPICAL DELINIATORS



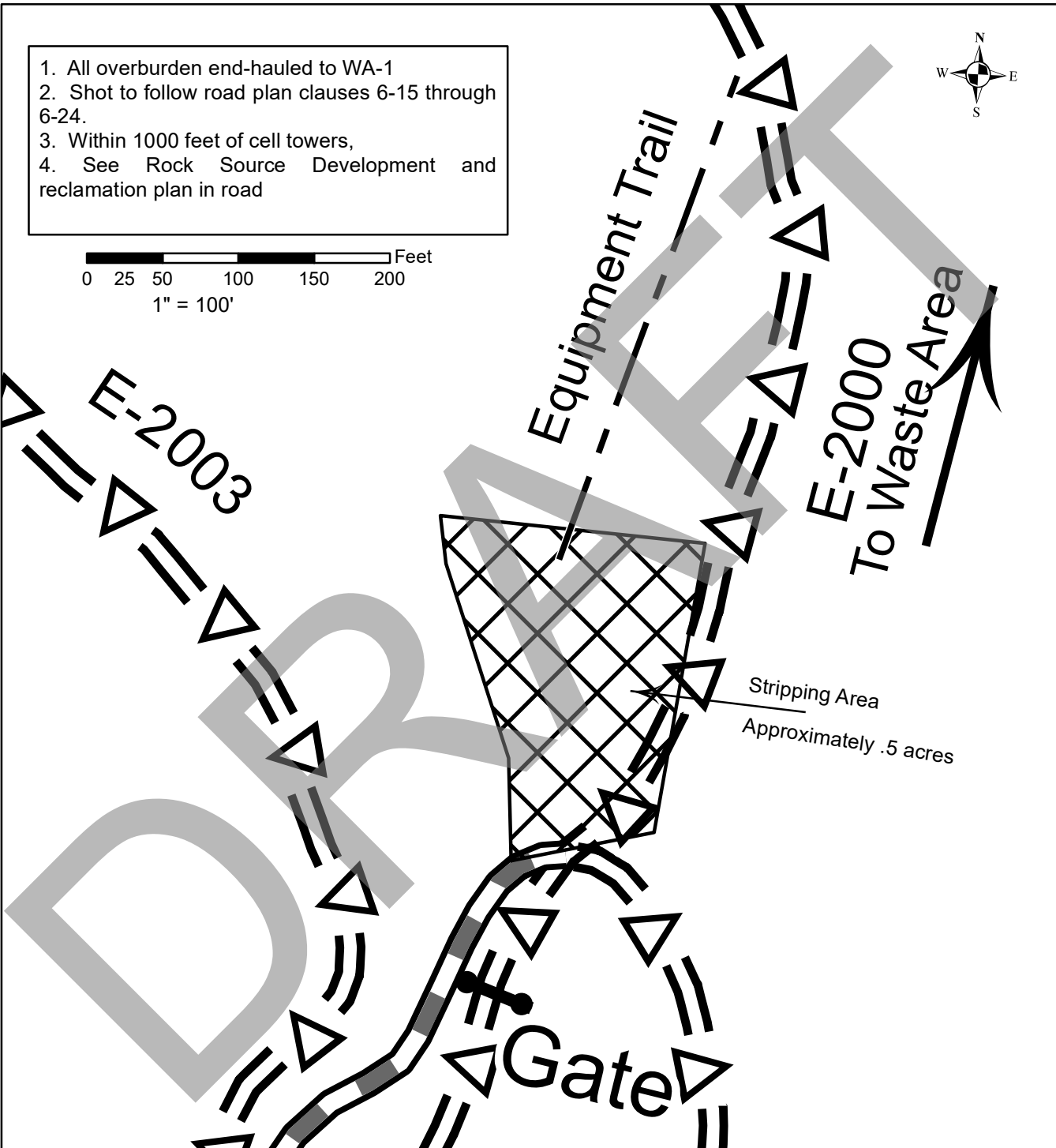
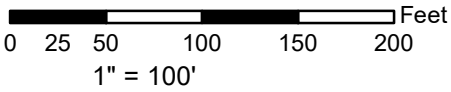
OBJECT MARKERS TYPE 3 SHALL BE 12" X 36" WITH REFLECTIVE STRIP BONDED TO A 14 GAUGE ALUMINUM SHEET. REFLECTIVE STRIPS SHALL BE 3M ENGINEER GRADE REFLECTIVE SHEETING OM-3R OR EQUAL.

NO SCALE

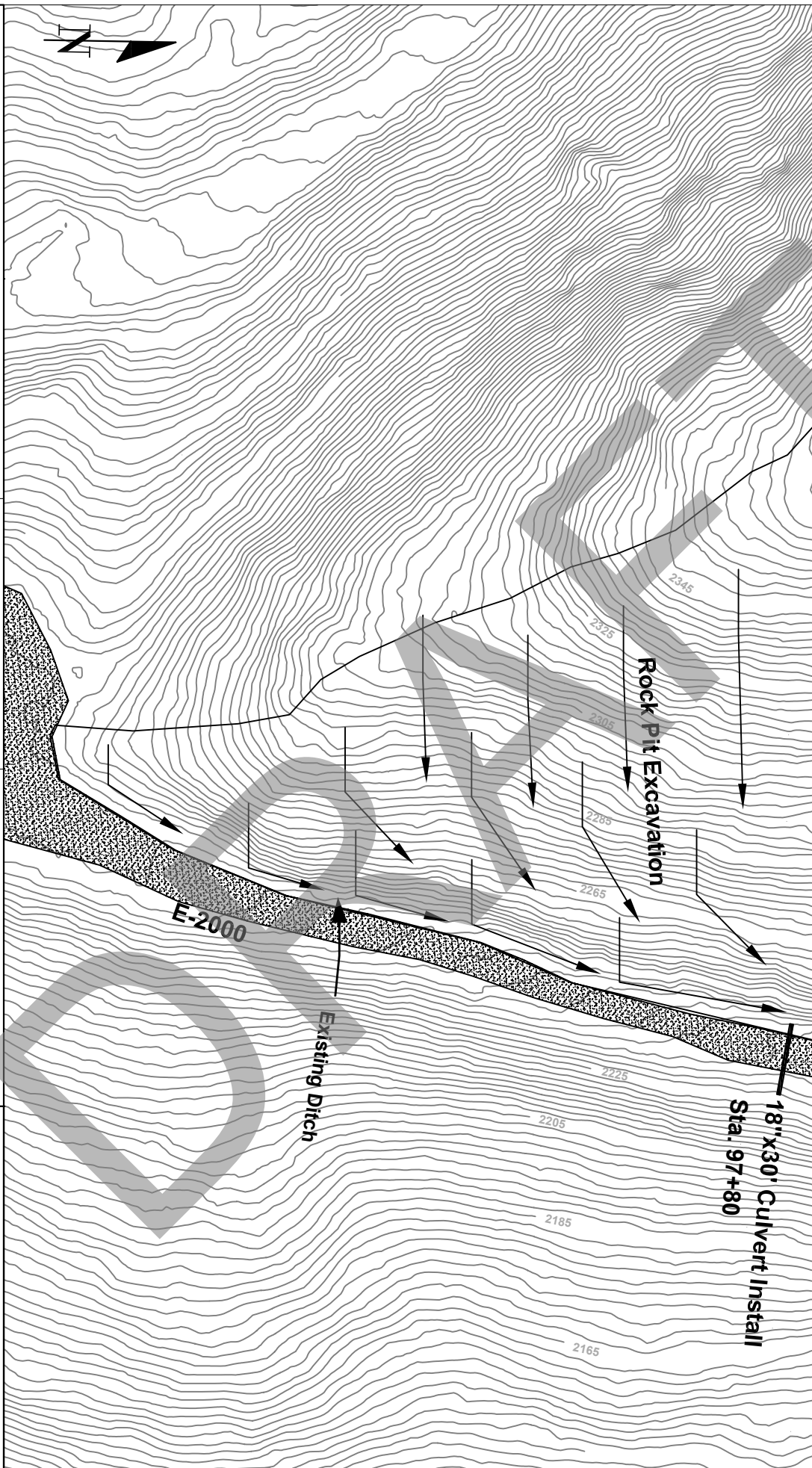
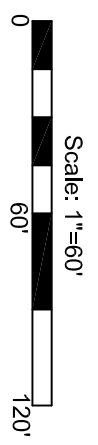
CLOVER PIT

T30N R13W SEC. 1

1. All overburden end-hauled to WA-1
2. Shot to follow road plan clauses 6-15 through 6-24.
3. Within 1000 feet of cell towers,
4. See Rock Source Development and reclamation plan in road



Blue View Rock Pit Drainage Plan View



Location: 124.3073966V, 48.1217559N
 Drawn by: Malja Griffin
 NOTES: Drainage from the rock pit will be diverted into the ditchline west of the E-2000 through culverts over the forest floor.

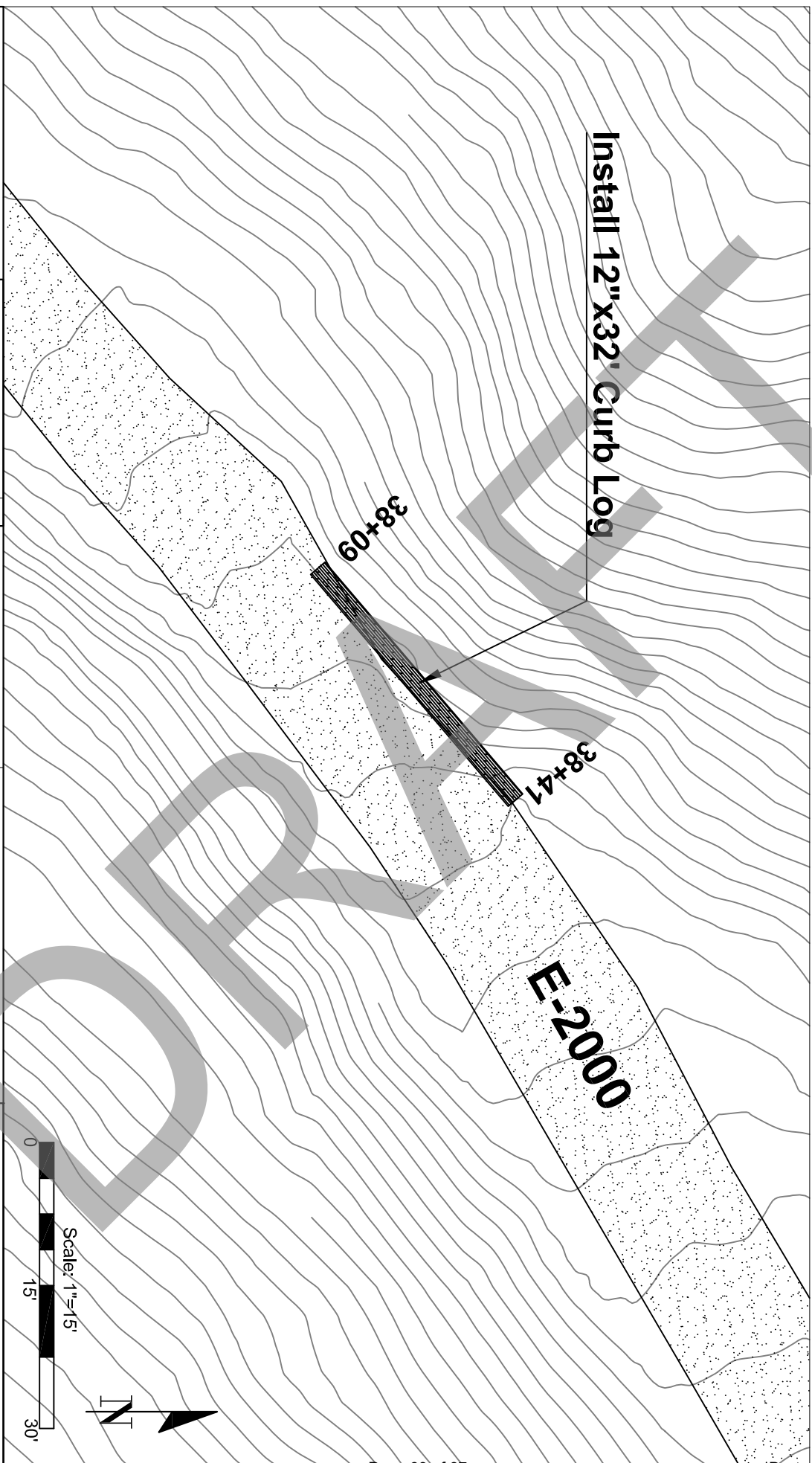
Key:
 Drainage Arrows



WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

FIGURE 1 of 1
 Date Drawn: 01/22/2024

Blue View
Curb Log Install Shallow Fill Failure 2
Plan View



Location:
124.3073366W, 48.1217559N

Drawn by: Malja Griffioen



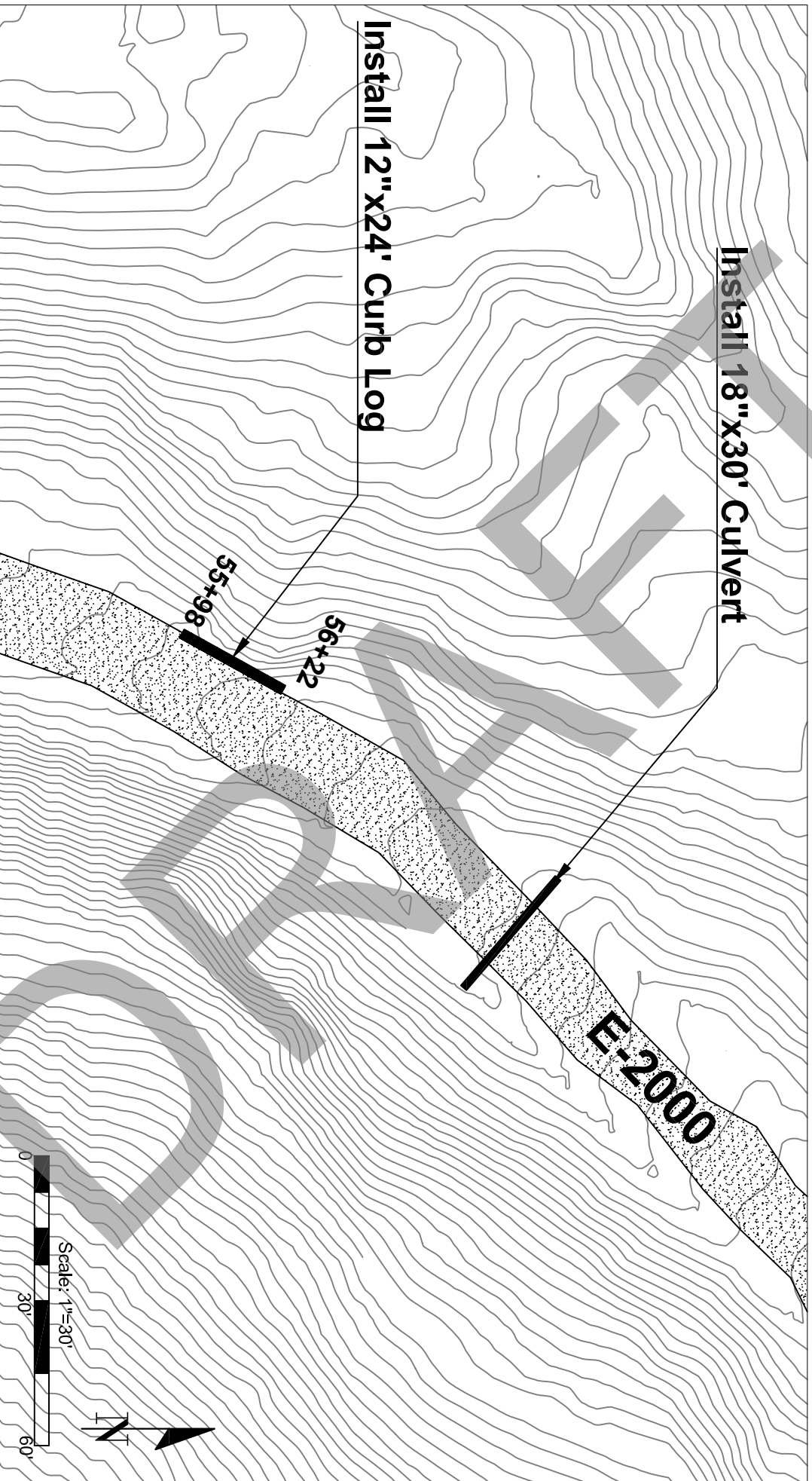
WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES



FIGURE 1 OF 1

Date Drawn: 01/22/2024

Blue View
Curb Log Install Shallow Fill Failure 1
Plan View



Location: 124.3052953V, 48.1260826N

Drawn by: Malja Grifflorn



WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

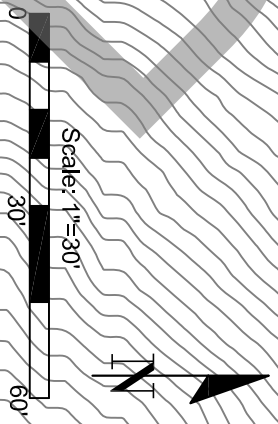
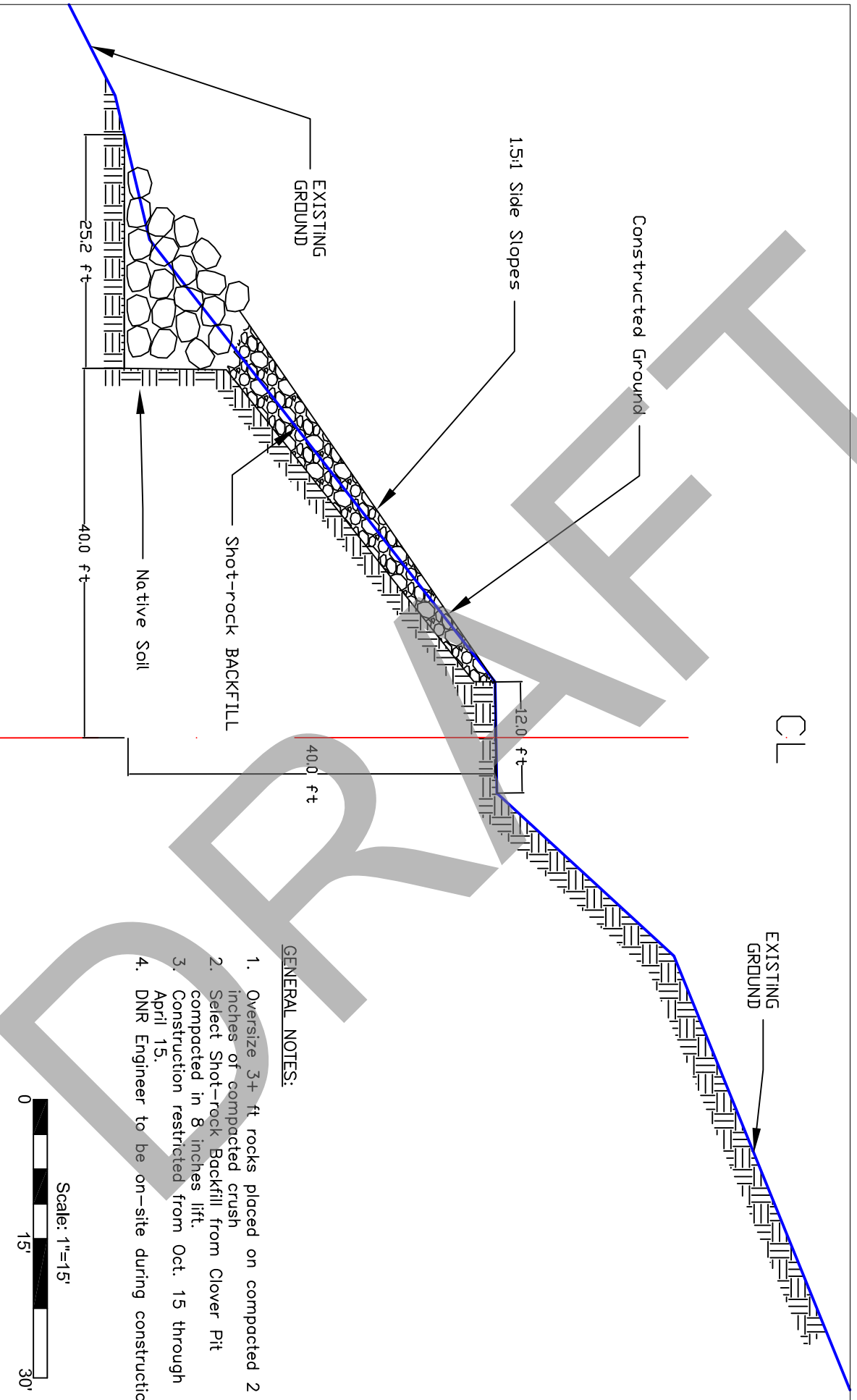


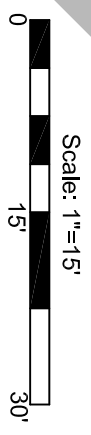
FIGURE 1 of 1
Date Drawn: 01/22/2024

Blue View E-2000 2022 Debris Flow Keyed Embankment STA 86+50 Cross-Section View



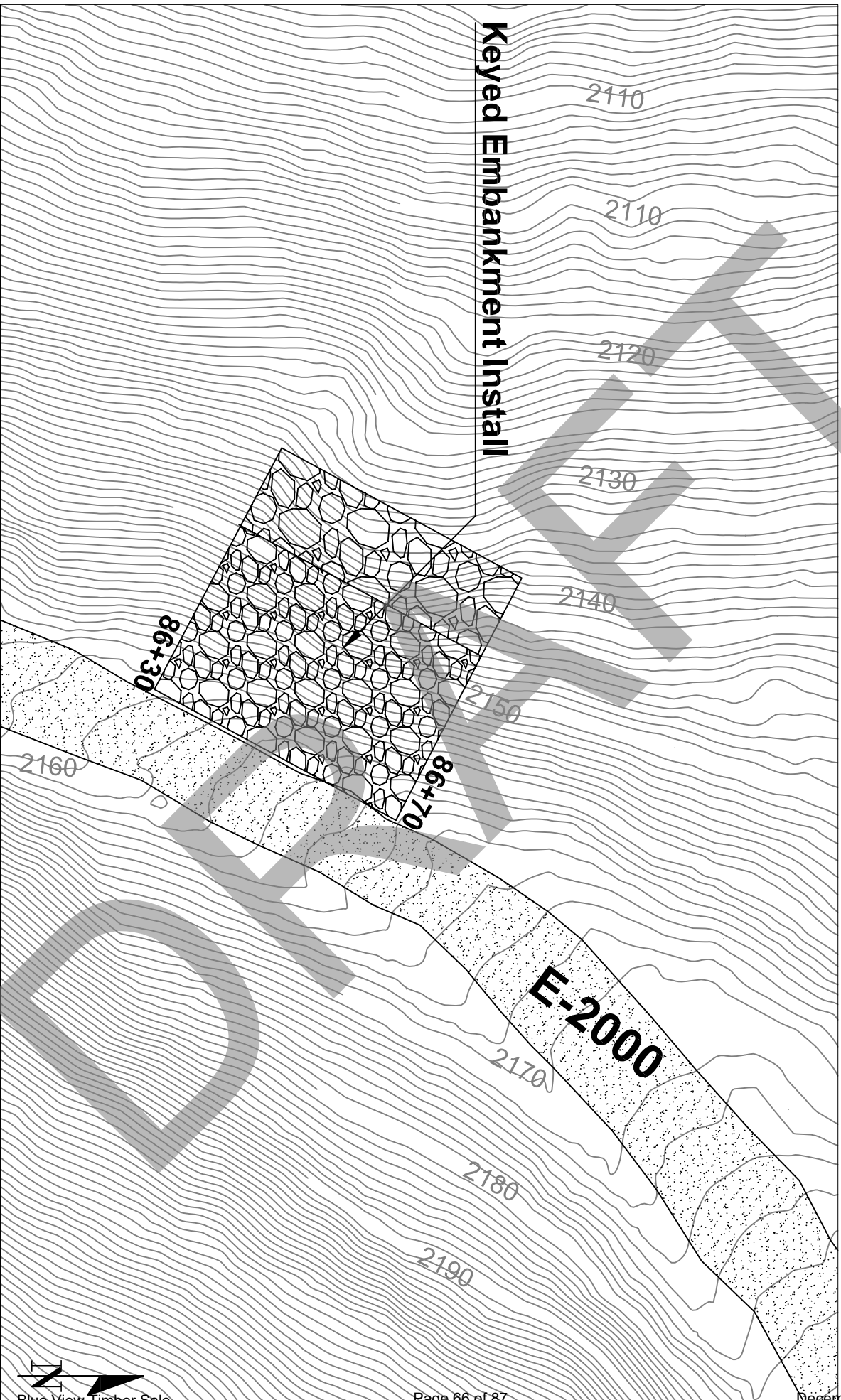
GENERAL NOTES:

1. Oversize 3+ ft rocks placed on compacted 2 inches of compacted crush
2. Select Shot-rock Backfill from Clover Pit compacted in 8 inches lift.
3. Construction restricted from Oct. 15 through April 15.
4. DNR Engineer to be on-site during construction.



Location: 124.3081947W, 48.1294982N	2022 Slide	<p>WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES</p>	<p>FIGURE 2 of 2</p> <p>Date Drawn: 01/26/2024</p>
	Drawn by: Malja Griffoen		

Blue View E-2000 2022 Debris Flow Keyed Embankment Plan View



Keyed Embankment Install

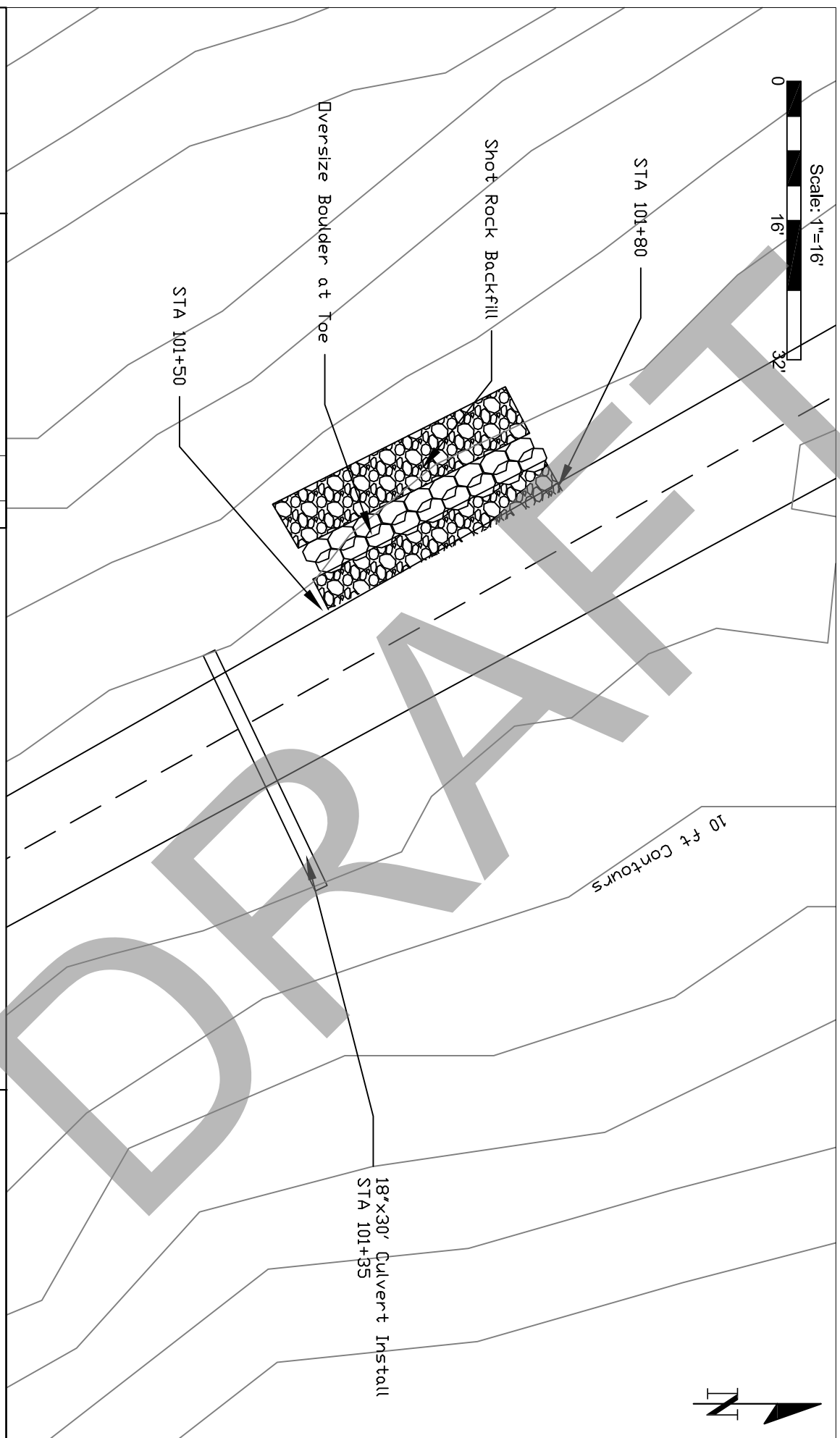
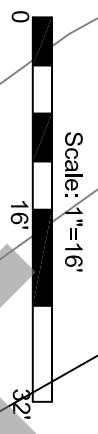
Location:	2022 Slide
124.3081947N, 481294982N	Drawn by: Malja Griffiths



WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

FIGURE 1 OF 2
Date Drawn: 01/26/2024

Blue View E-2000 1 1 Shallow andslide Slide Repair Plan View



Location:
124.3135104V, 481293482N
1971 Landslide

General Notes Addition
Drawn by: Malia Griffler

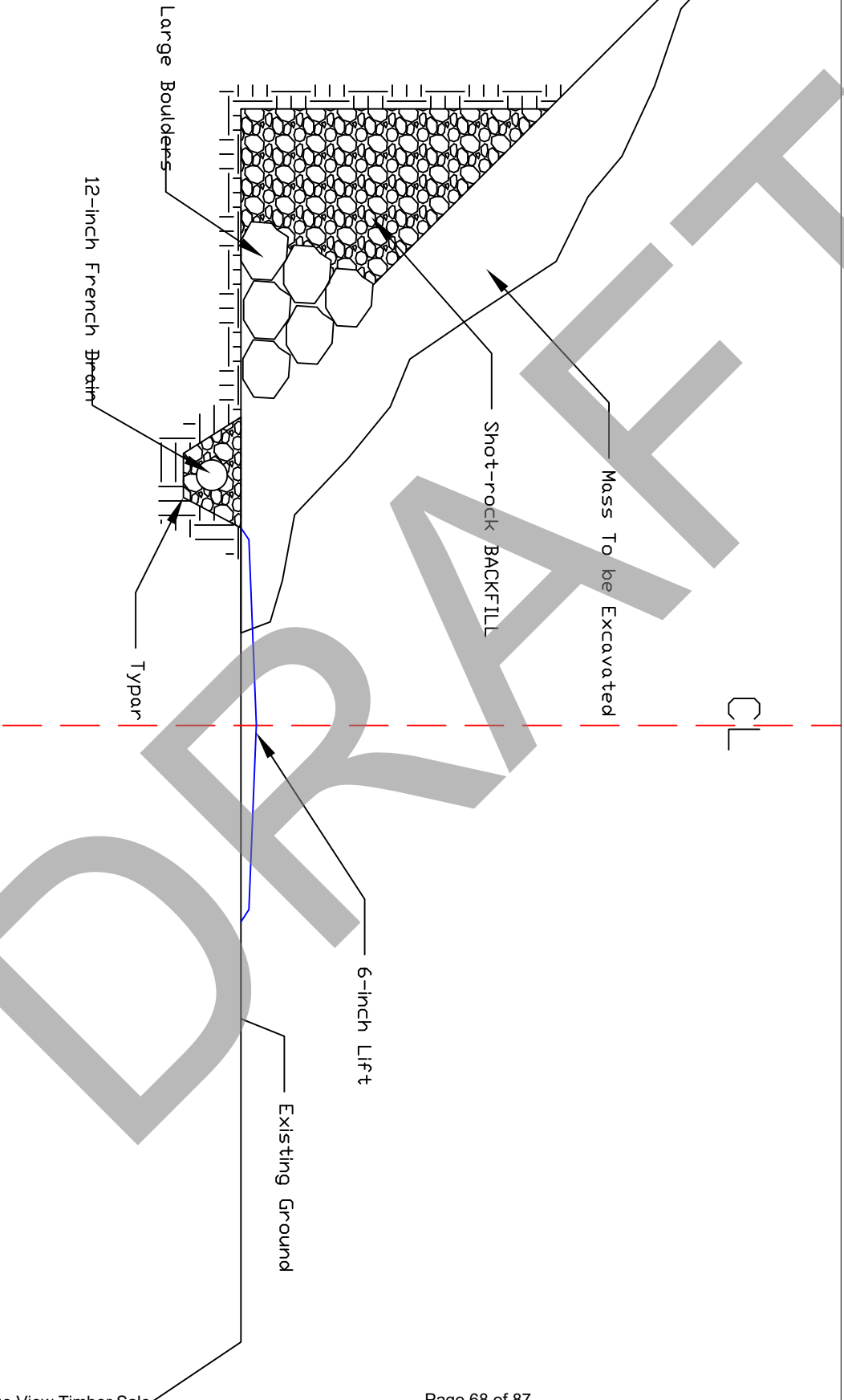


WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

FIGURE 1 OF 4

Date Drawn: 12/14/2023

Blue View E-2000 1 1 Shallow Landslide
 Slide Repair STA 101+75
 Cross-Section View



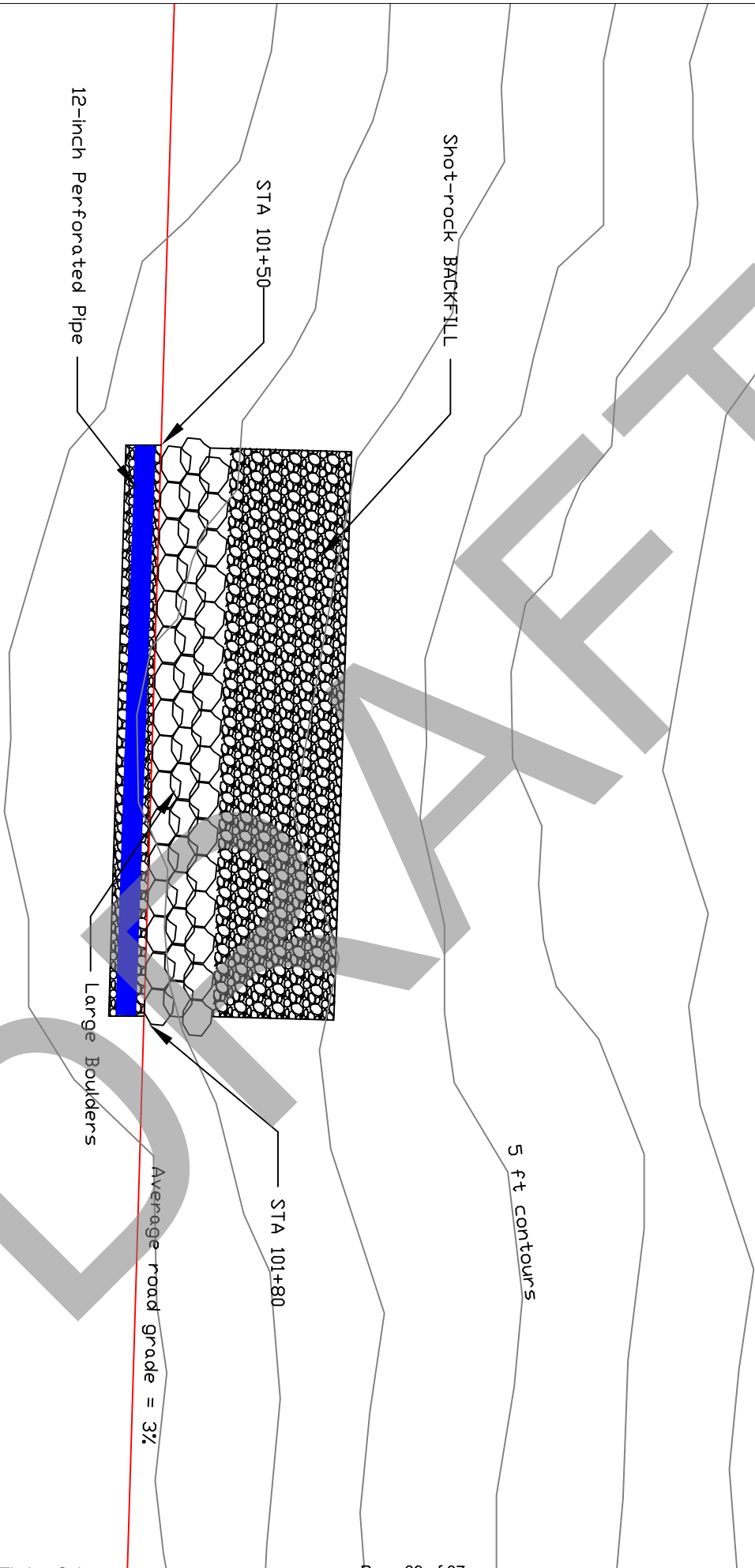
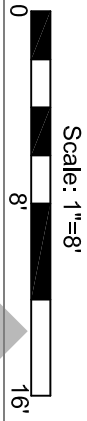
Location:	General Notes Addition
124.3135104V, 4811293482N	Drawn by: Malja, G.R.Floren
1971 Landslide	

WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

FIGURE 2 of 4

Date Drawn: 12/14/2023

Blue View E-2000 1 1 Shallow andslide Slide Repair Profile View



Location: 124.3135104V, 48.1293482N 1971 Landslide	General Notes Addition Drawn by: Halja Griffløen
--	---

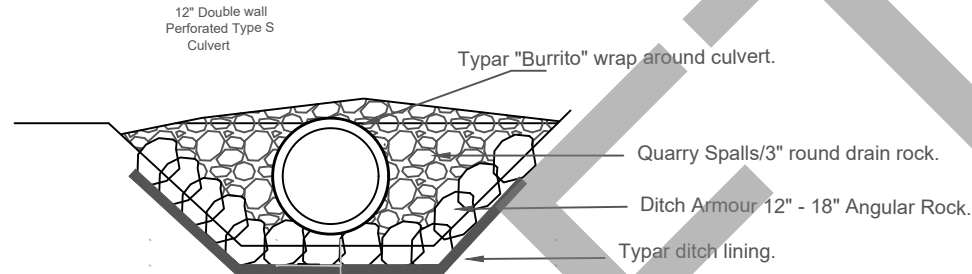


WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

FIGURE 3 OF 4

Date Drawn: 12/14/2023

TYPICALS SHEET

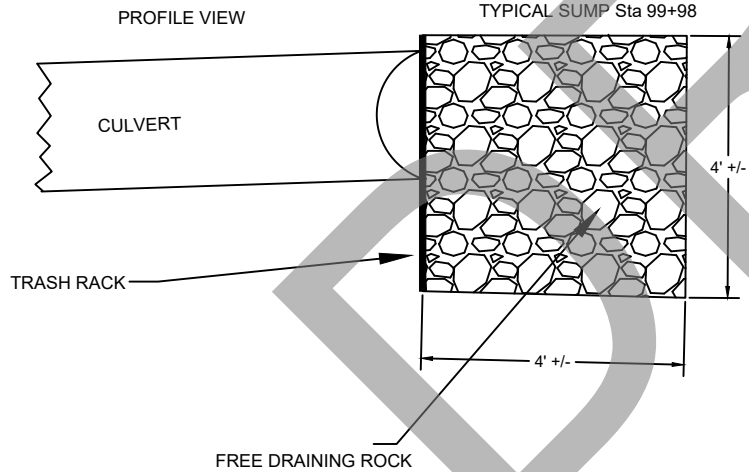


GEOTEXTILE FOR SUBSURFACE DRAINAGE

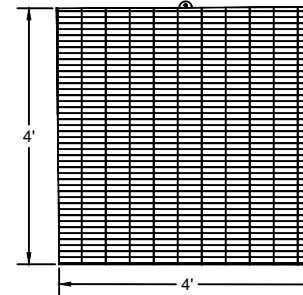
Geotextiles shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for drainage or filtration. Woven slit-film geotextiles will not be allowed. Material shall be free of defects, cuts, and tears.

Type	ASTM Test	Requirements
Non-woven		
Apparent opening size	D 4751	No. 90 max
Water permittivity	D 4491	1.8 sec-1
Grab tensile strength	D 4632	120 lbs
Grab tensile elongation	D 4632	50%
Puncture strength	D 6241	70 lb
Tear strength	D 4533	50 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

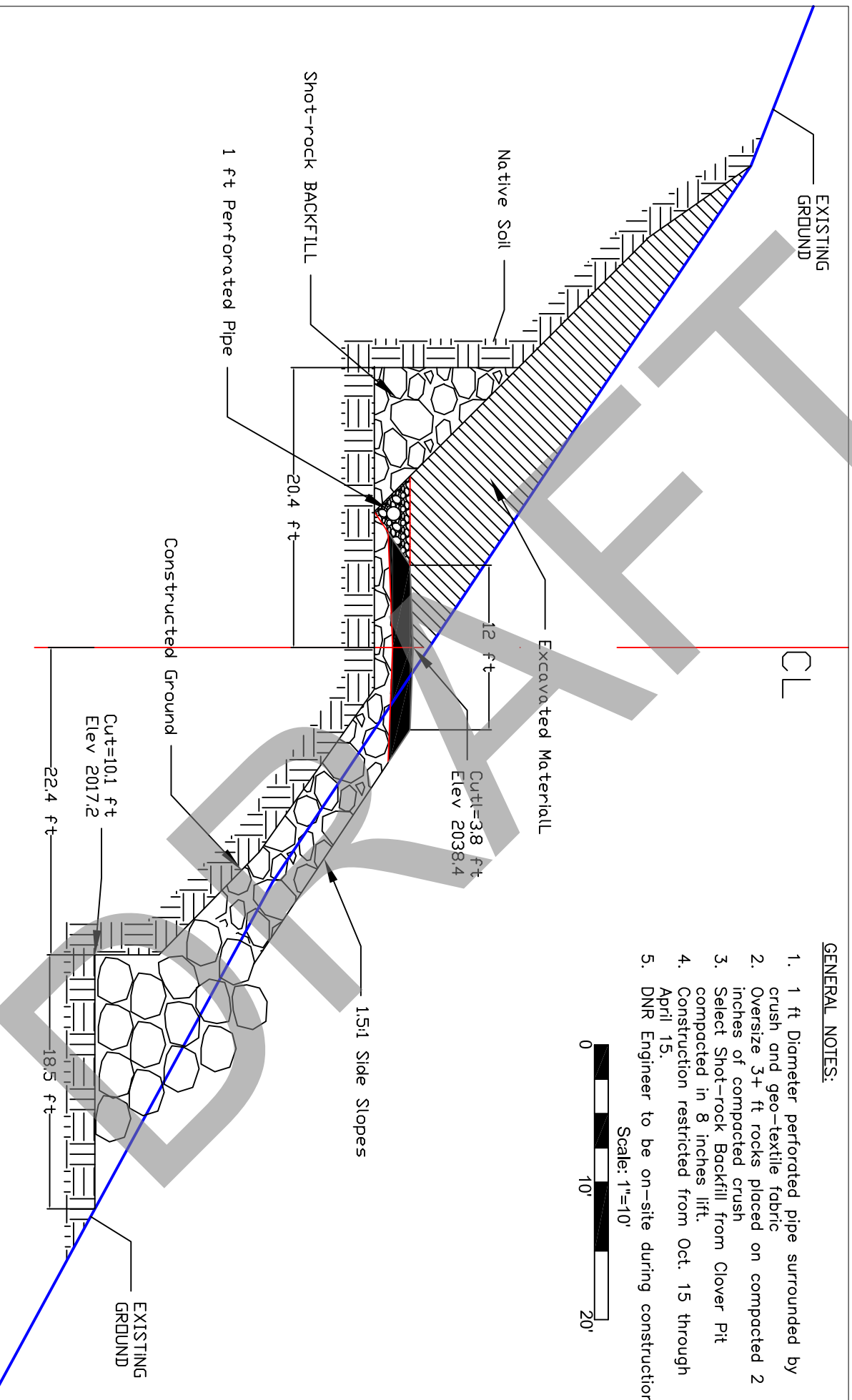
Mirafir 140N or Equivalent for both Ditch lining and culvert wrap. District Engineer to approve any Changes.



TYPICAL TRASH RACK
2" CRUSHER SCREEN ACCEPTABLE

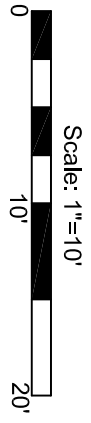



Blue View E-2004 Bedrock Hollow 2 Keyed Embankment STA 20+53 Cross-Section View



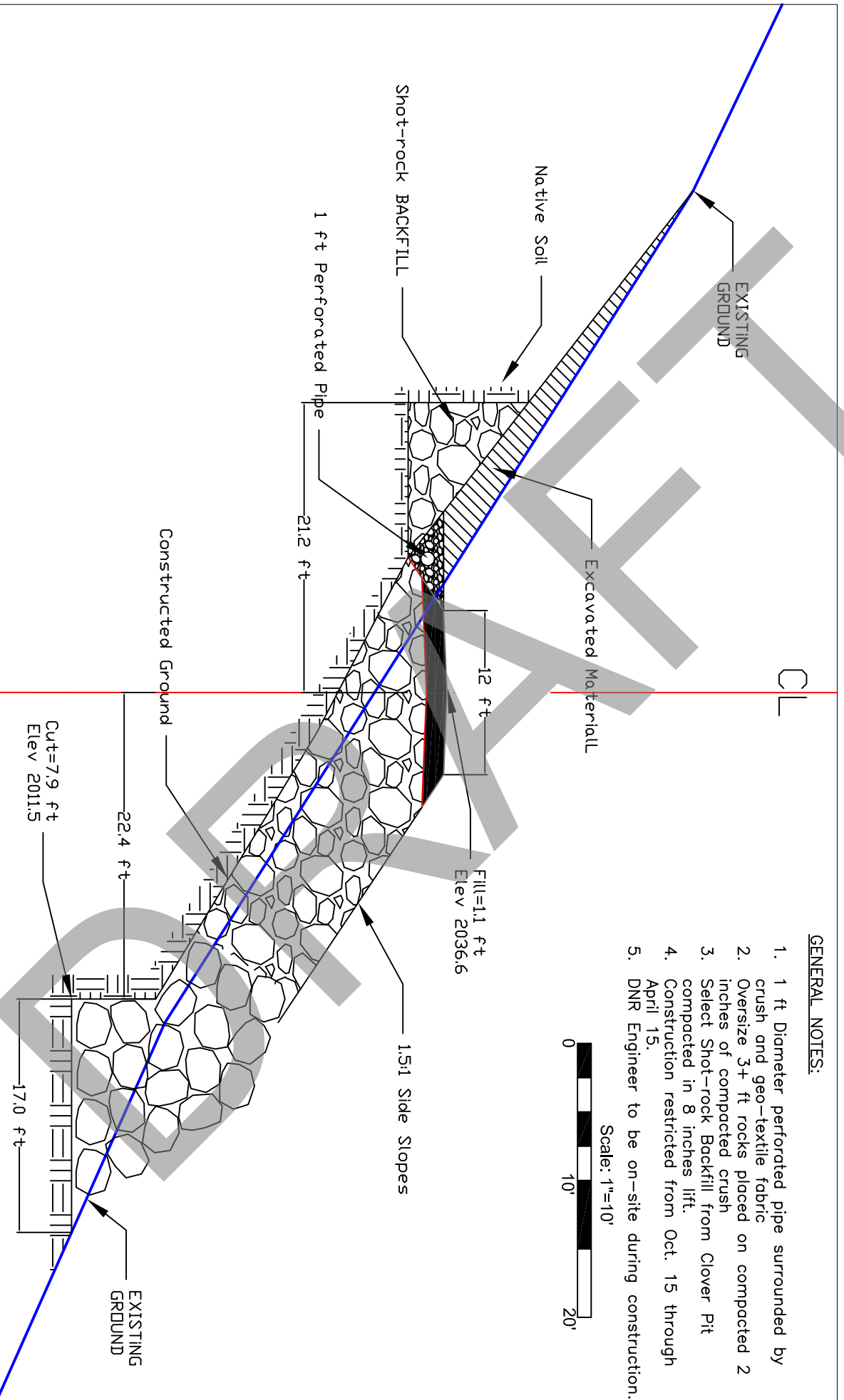
GENERAL NOTES:

1. 1 ft Diameter perforated pipe surrounded by crush and geo-textile fabric
2. Oversize 3+ ft rocks placed on compacted 2 inches of compacted crush
3. Select Shot-rock Backfill from Clover Pit compacted in 8 inches lift.
4. Construction restricted from Oct. 15 through April 15.
5. DNR Engineer to be on-site during construction.



Location 124.30E48E27N, 48J126427N	BH-2	 WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	FIGURE 2 of 4 Date Drawn: 12/14/2023

Blue View E-2004 Bedrock Hollow 2 Keyed Embankment STA 20+70 Cross-Section View



GENERAL NOTES:

1. 1 ft Diameter perforated pipe surrounded by crush and geo-textile fabric
2. Oversize 3+ ft rocks placed on compacted 2 inches of compacted crush
3. Select Shot-rock Backfill from Clover Pit compacted in 8 inches lift.
4. Construction restricted from Oct. 15 through April 15.
5. DNR Engineer to be on-site during construction.

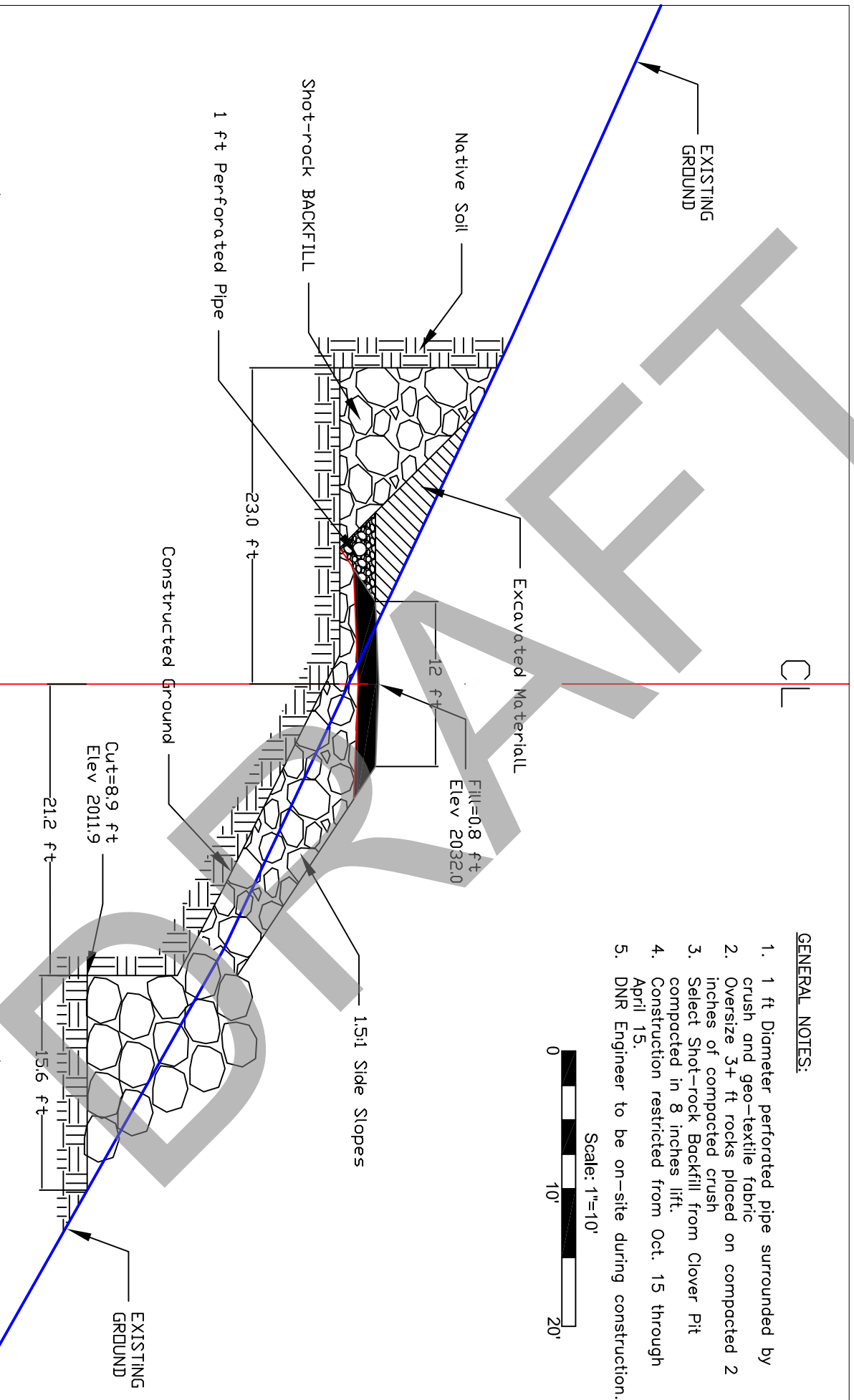


Location:	BH-2
124.3024827N, 48126427N	



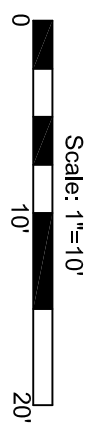
FIGURE 3 OF 4
Date Drawn: 12/14/2023


Blue View E-2004 Bedrock Hollow 2 Keyed Embankment STA 21+00 Cross-Section View

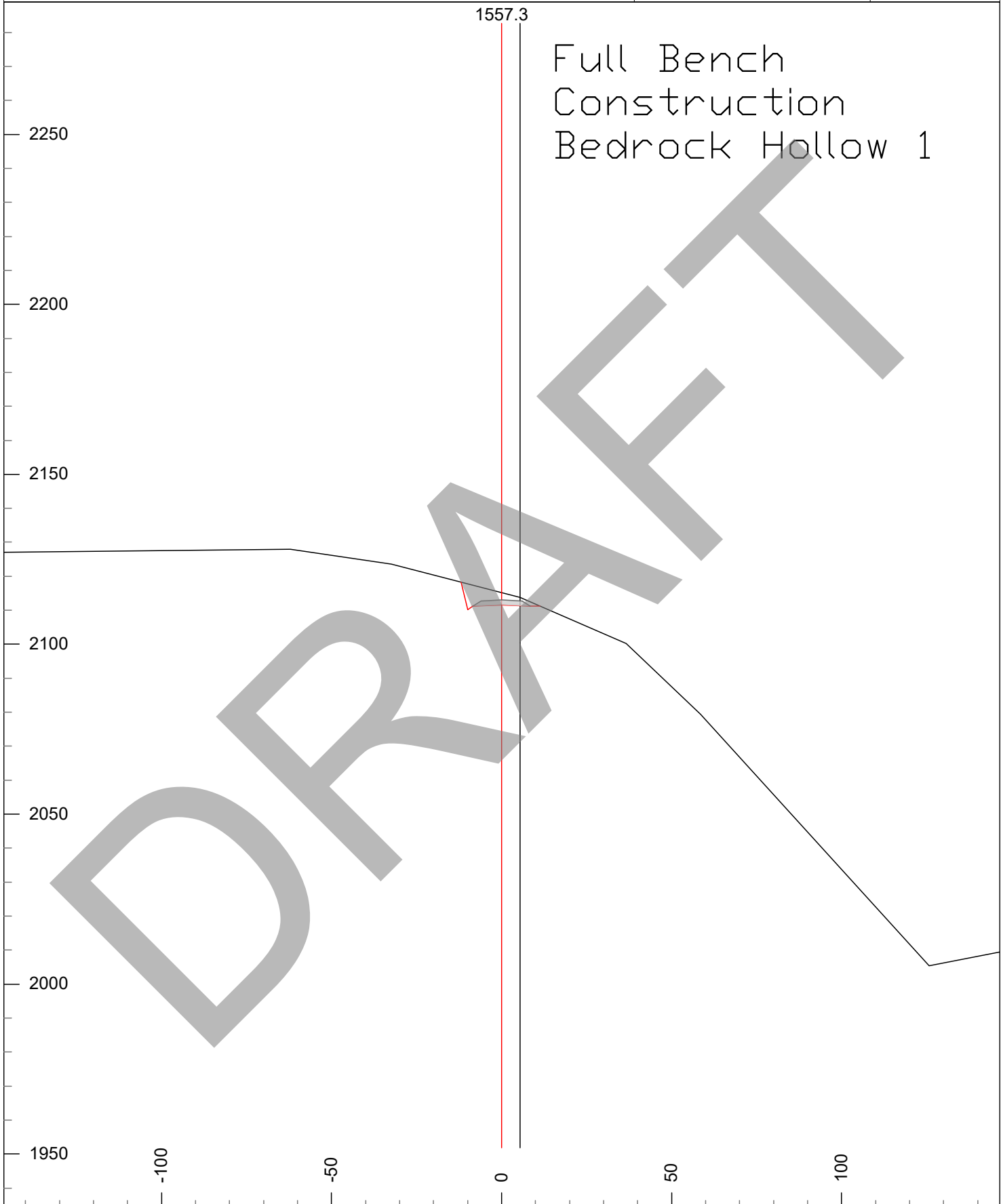


GENERAL NOTES:

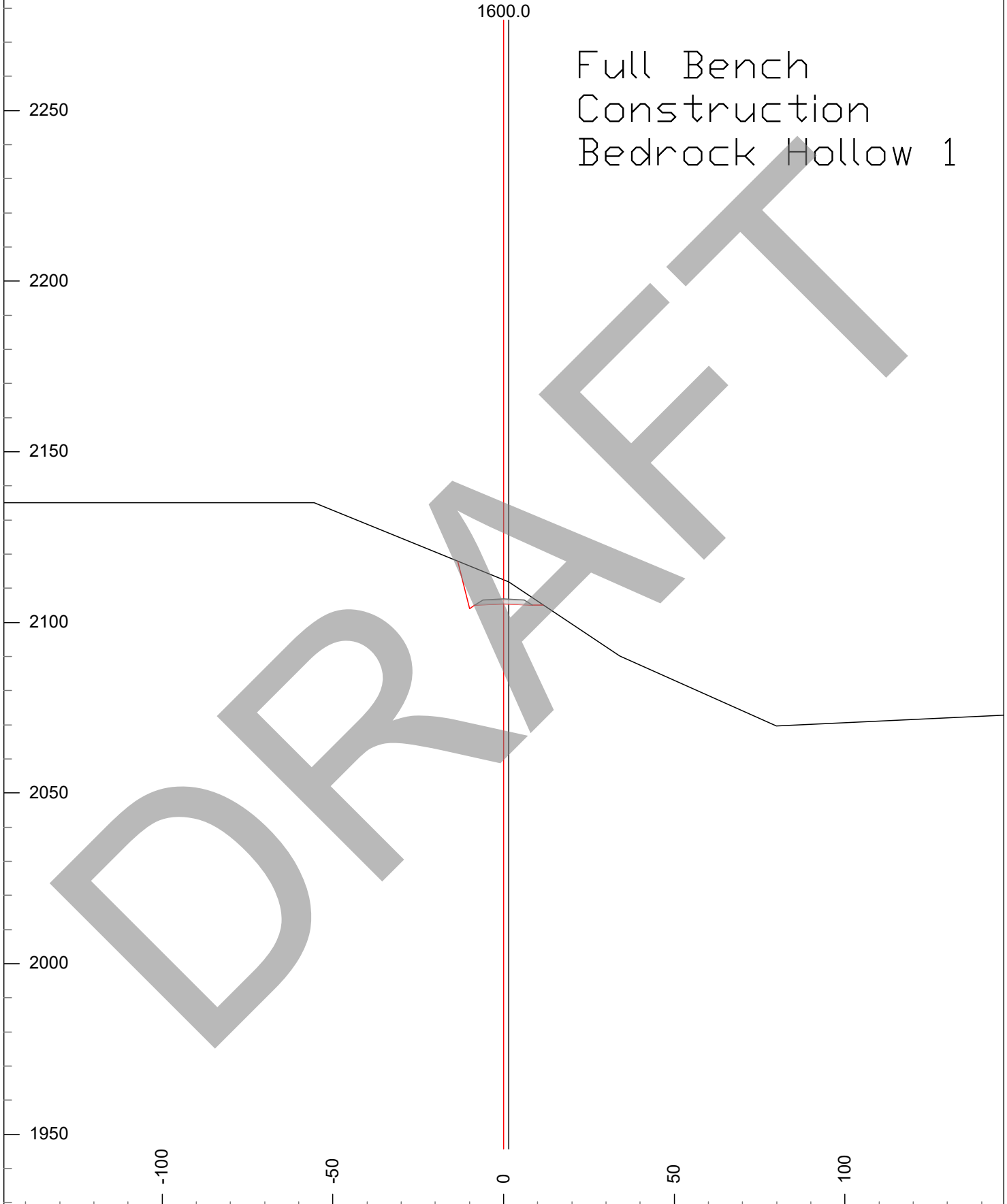
1. 1 ft Diameter perforated pipe surrounded by crush and geo-textile fabric
2. Oversize 3+ ft rocks placed on compacted 2 inches of compacted crush
3. Select Shot-rock Backfill from Clover Pit compacted in 8 inches lift.
4. Construction restricted from Oct. 15 through April 15.
5. DNR Engineer to be on-site during construction.



Location 124.3024827N, 48126427N	BH-2	 <p>WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES</p>	<p>FIGURE 4 of 4</p> <p>Date Drawn: 12/14/2023</p>

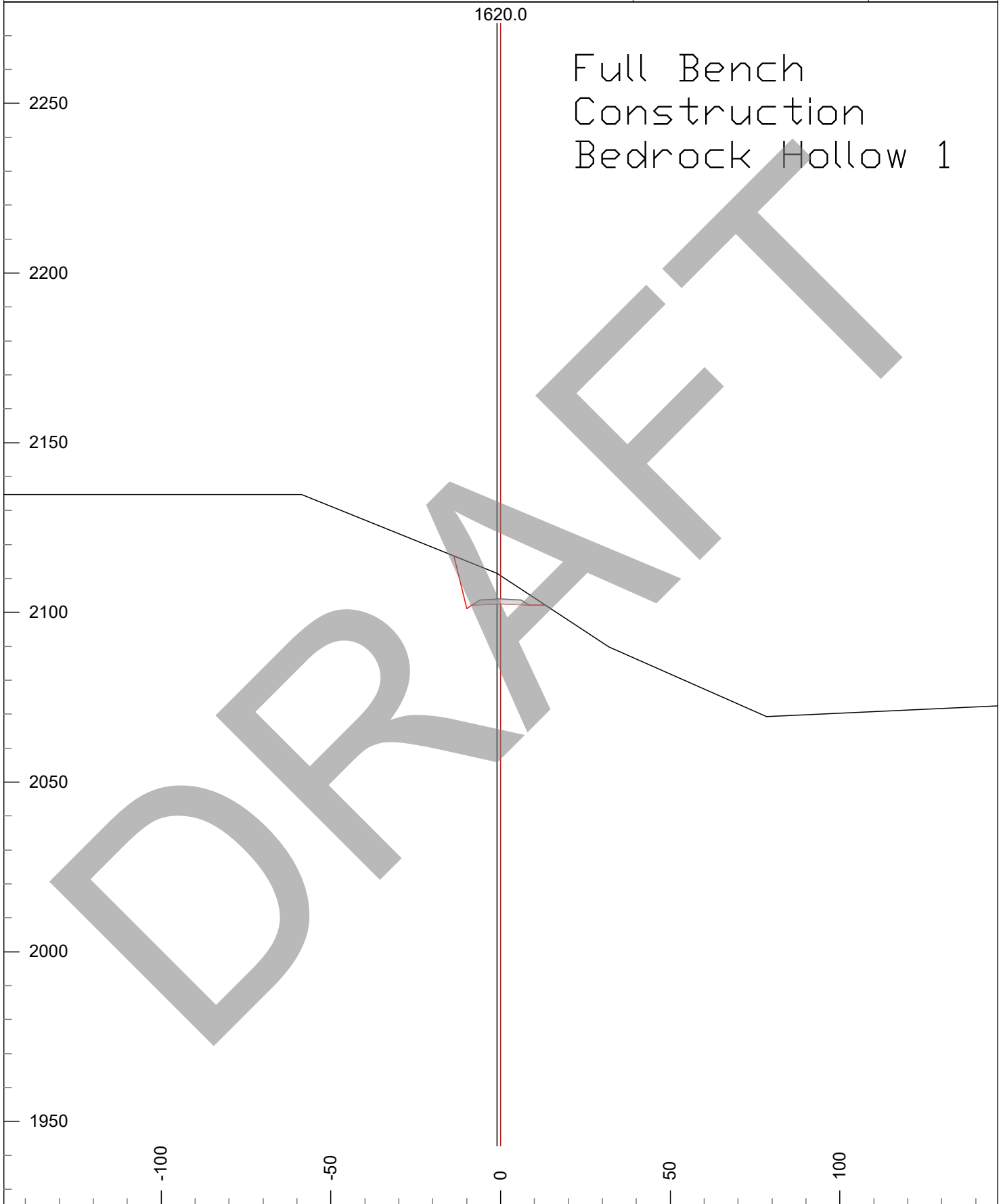


L-Stn :	1557.3	Gnd Elev:	2115.2	Cut Dp:	3.6	Grd.Nxt.:	-14	Clr L:	13.7
P-Stn :	1558.2	CL Elev:	2111.5	H. Offset:	-5.4	Grd.Lst:	-14	Clr R:	11.3

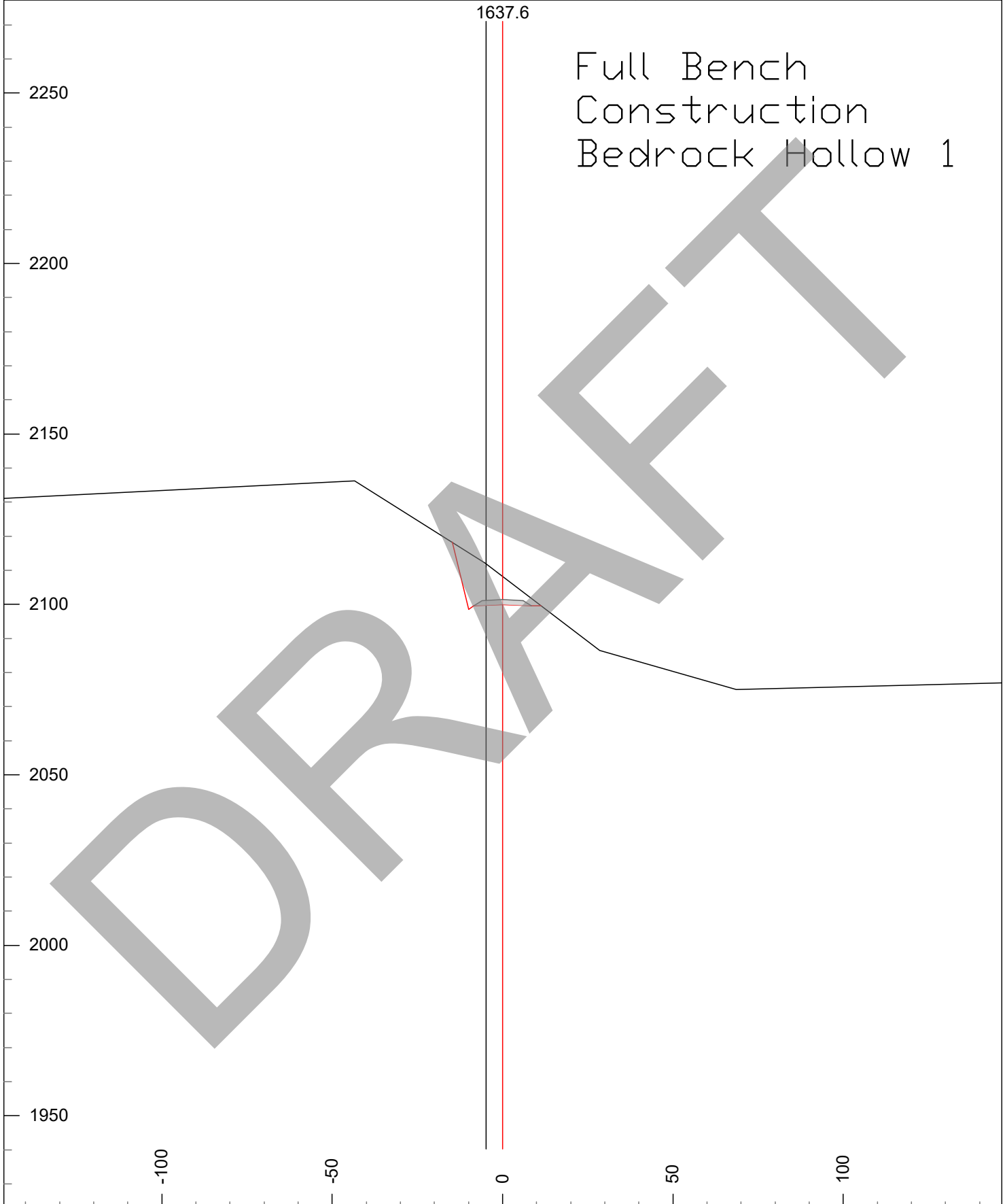


L-Stn :	1600.0	Gnd Elev:	2112.4	Cut Dp:	7.0	Grd.Nxt.:	-14	Clr L:	18.3
---------	--------	-----------	--------	---------	-----	-----------	-----	--------	------

P-Stn :	1601.1	CL Elev:	2105.4	H. Offset:	-1.4	Grd.Lst:	-14	Clr R:	11.6
---------	--------	----------	--------	------------	------	----------	-----	--------	------

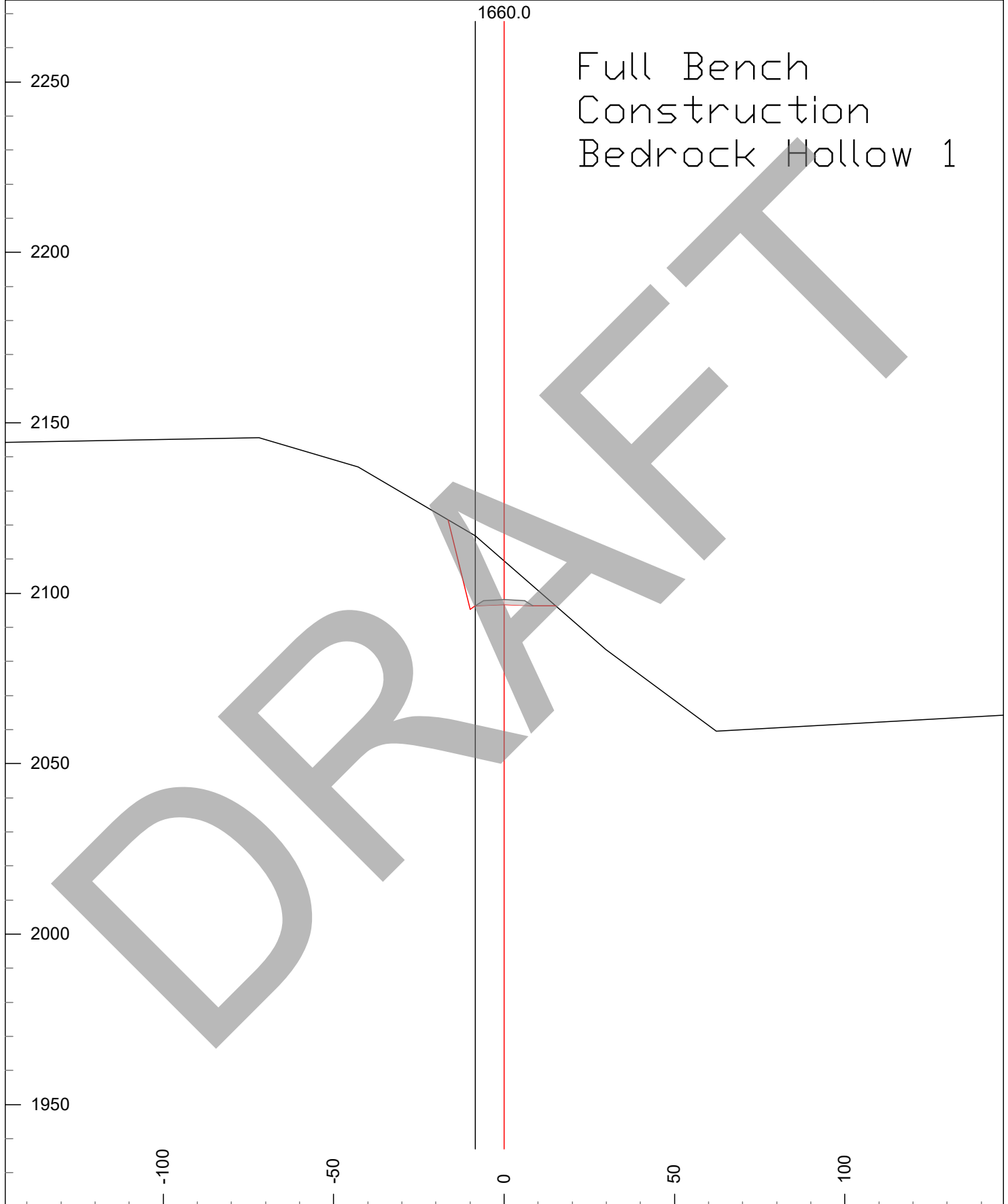


L-Stn :	1620.0	Gnd Elev:	2110.7	Cut Dp:	8.2	Grd.Nxt.:	-14	Clr L:	19.7
P-Stn :	1620.9	CL Elev:	2102.5	H. Offset:	1.1	Grd.Lst:	-14	Clr R:	13.1



L-Stn :	1637.6	Gnd Elev:	2108.3	Cut Dp:	8.4	Grd.Nxt.:	-15	Clr L:	23.6
---------	--------	-----------	--------	---------	-----	-----------	-----	--------	------

P-Stn :	1638.8	CL Elev:	2099.9	H. Offset:	4.8	Grd.Lst:	-15	Clr R:	11.4
---------	--------	----------	--------	------------	-----	----------	-----	--------	------

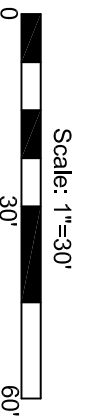
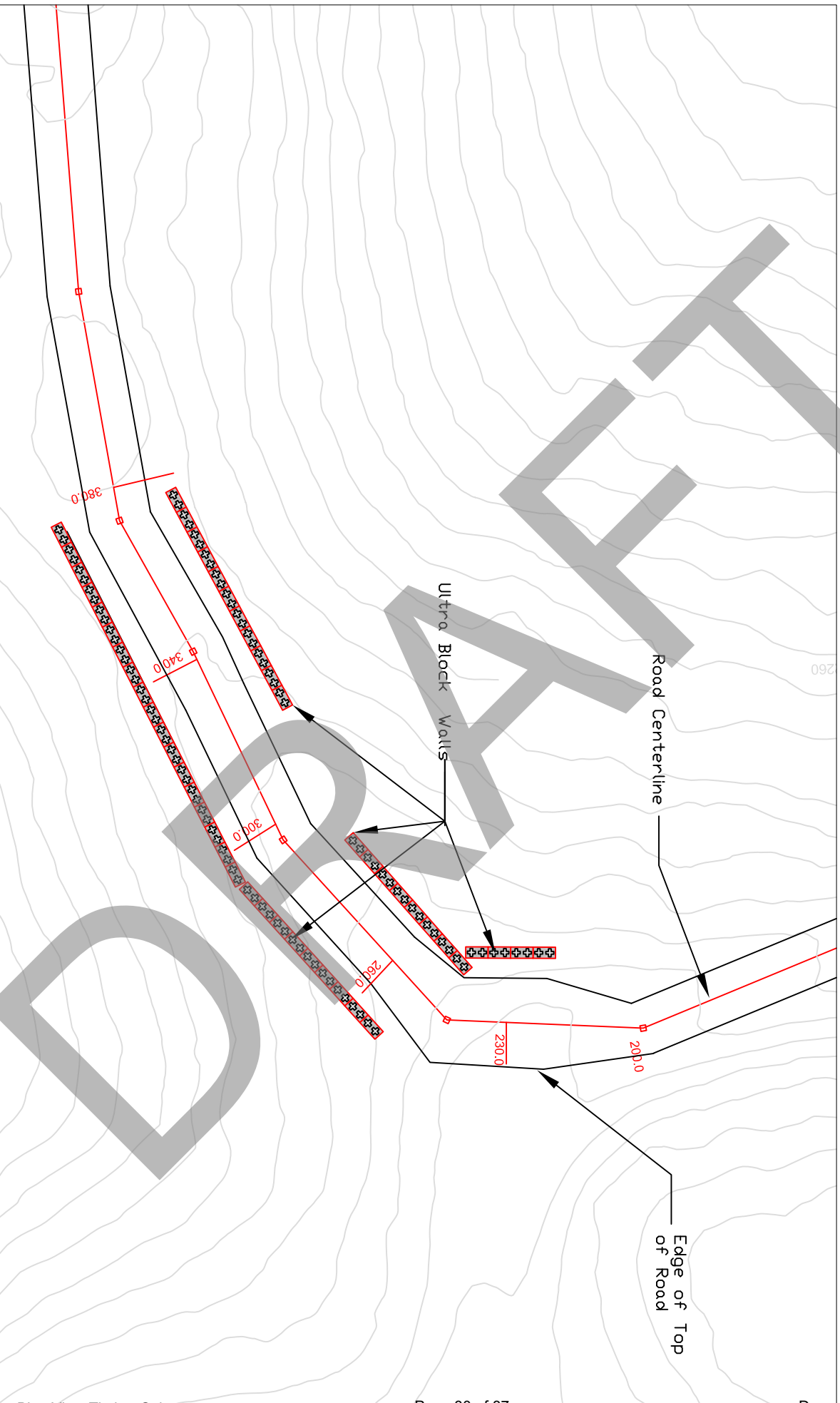


Full Bench
Construction
Bedrock Hollow 1

DRAFT

L-Stn :	1660.0	Gnd Elev:	2109.4	Cut Dp:	12.8	Grd.Nxt.:	-15	Clr L:	29.8
P-Stn :	1661.5	CL Elev:	2096.6	H. Offset:	8.4	Grd.Lst:	-15	Clr R:	15.2

Blue View Spur 4+95 Ultra Block Walls Plan View



Location:
124.3135104W, 481293482N



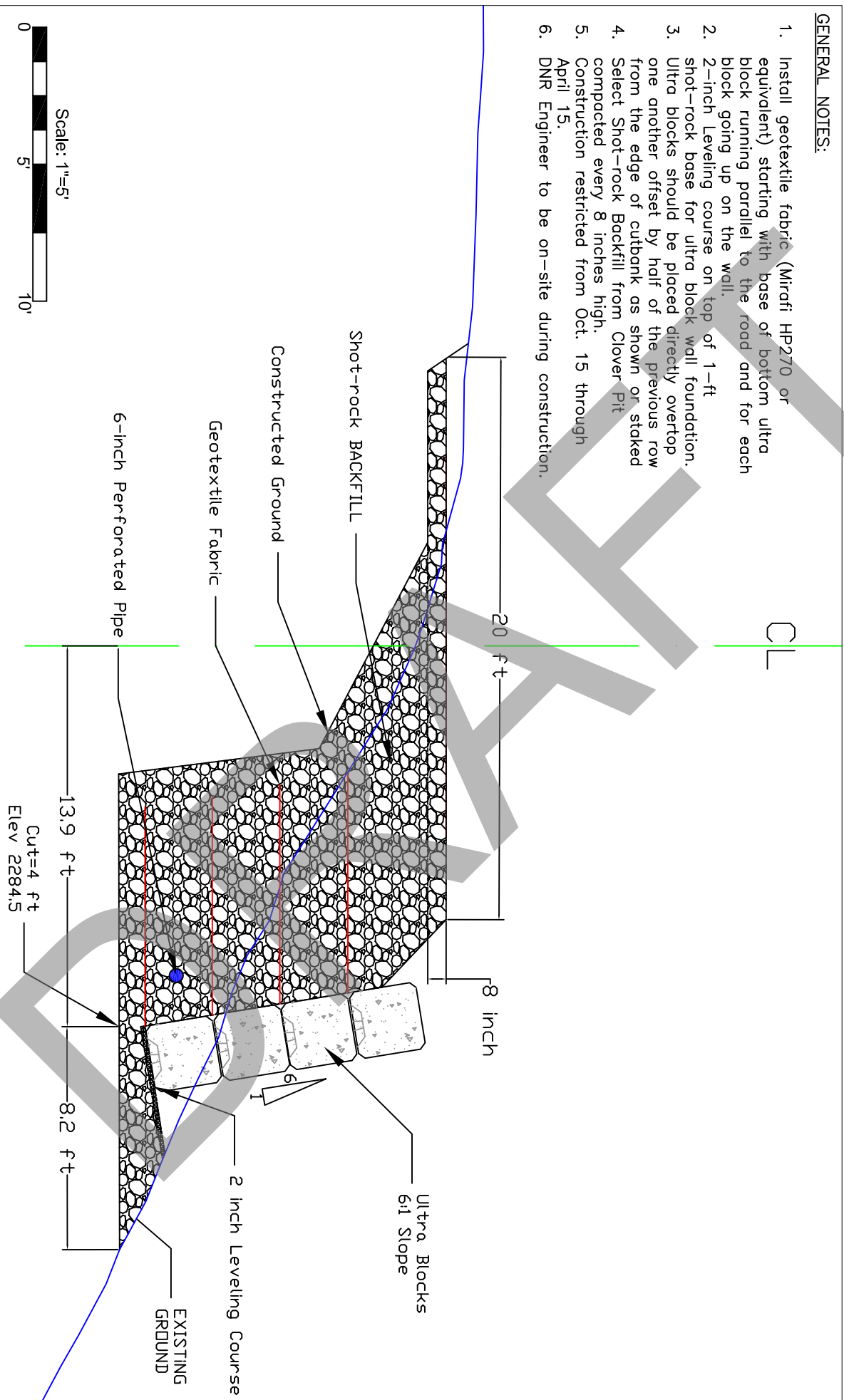
WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

FIGURE 1 OF 8

Blue View Spur 4+95 Ultra Block Wall STA 2+30 Cross-Section View

GENERAL NOTES:

1. Install geotextile fabric (Mirafi HP270 or equivalent) starting with base of bottom ultra block running parallel to the road and for each block going up on the wall.
2. 2-inch Leveling course on top of 1-ft shot-rock base for ultra block wall foundation.
3. Ultra blocks should be placed directly overtop one another offset by half of the previous row from the edge of cutbank as shown or staked.
4. Select Shot-rock Backfill from Clover Pit compacted every 8 inches high.
5. Construction restricted from Oct. 15 through April 15.
6. DNR Engineer to be on-site during construction.

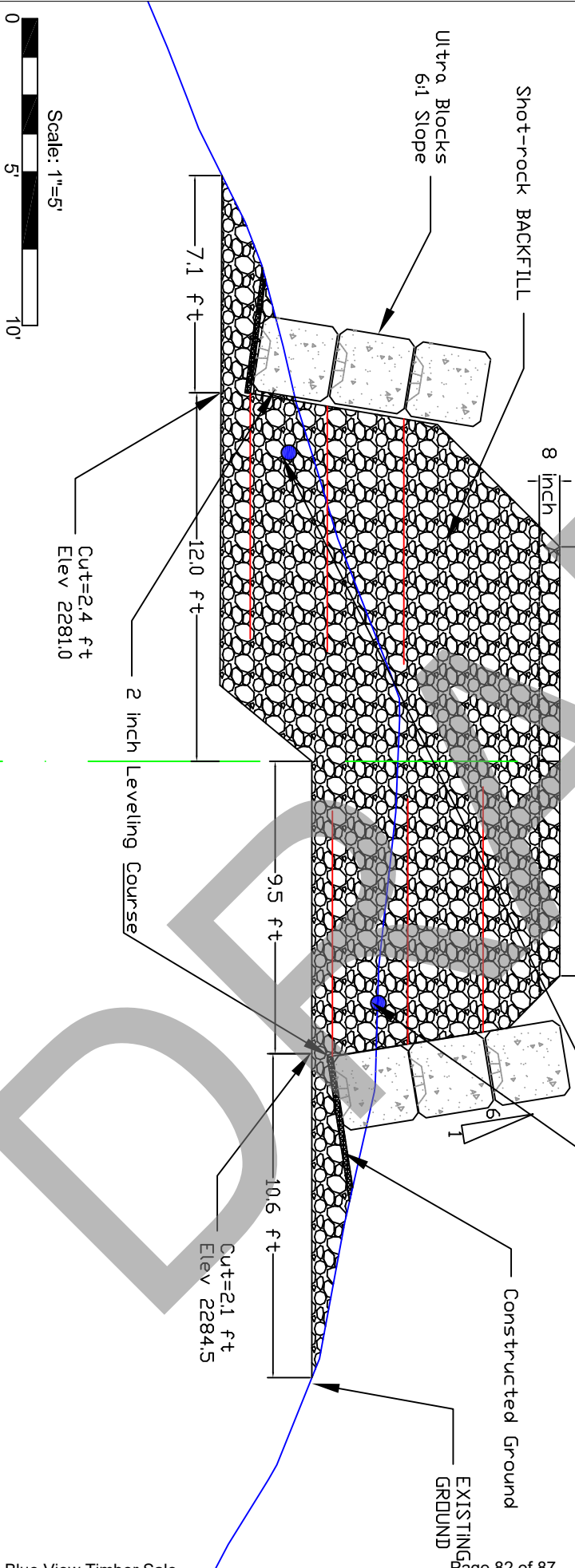


Location: 124.3135104V, 48.1293482N	General Notes Addition	11-28-23	KKG
 WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES			
FIGURE 2 of 8			

Blue View Spur 4+95 Ultra Block Wall STA 2+60 Cross-Section View

GENERAL NOTES:

1. Install geotextile fabric (Mirafi HP270 or equivalent) starting with base of bottom ultra block running parallel to the road and for each block going up on the wall.
2. 2-inch Leveling course on top of 1-ft shot-rock base for ultra block wall foundation.
3. Ultra blocks should be placed directly overtop one another offset by half of the previous row from the edge of cutbank as shown or staked.
4. Select Shot-rock Backfill from Clover Pit compacted every 8 inches high.
5. Construction restricted from Oct. 15 through April 15.
6. DNR Engineer to be on-site during construction.

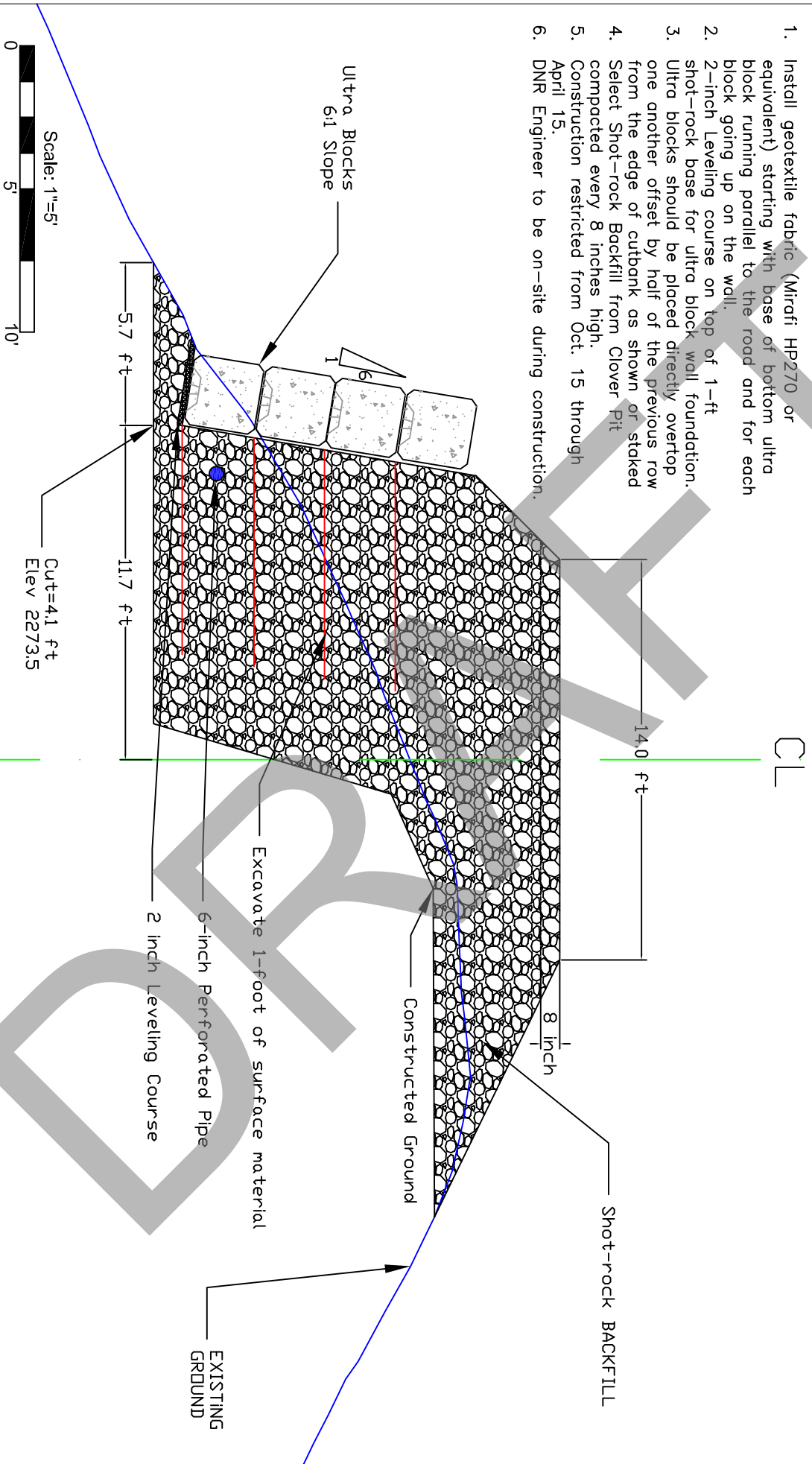



Location: 124.3135104V, 481293482N	General Notes Addition	11-20-23 MKG
 WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES		
FIGURE 3 of 8		

Blue View Spur 4+95 Ultra Block Wall STA 3+00 Cross-Section View

GENERAL NOTES:

1. Install geotextile fabric (Mirafi HP270 or equivalent) starting with base of bottom ultra block running parallel to the road and for each block going up on the wall.
2. 2-inch Leveling course on top of 1-ft shot-rock base for ultra block wall foundation.
3. Ultra blocks should be placed directly overtop one another offset by half of the previous row from the edge of cutbank as shown or stacked.
4. Select Shot-rock Backfill from Clover Pit compacted every 8 inches high.
5. Construction restricted from Oct. 15 through April 15.
6. DNR Engineer to be on-site during construction.

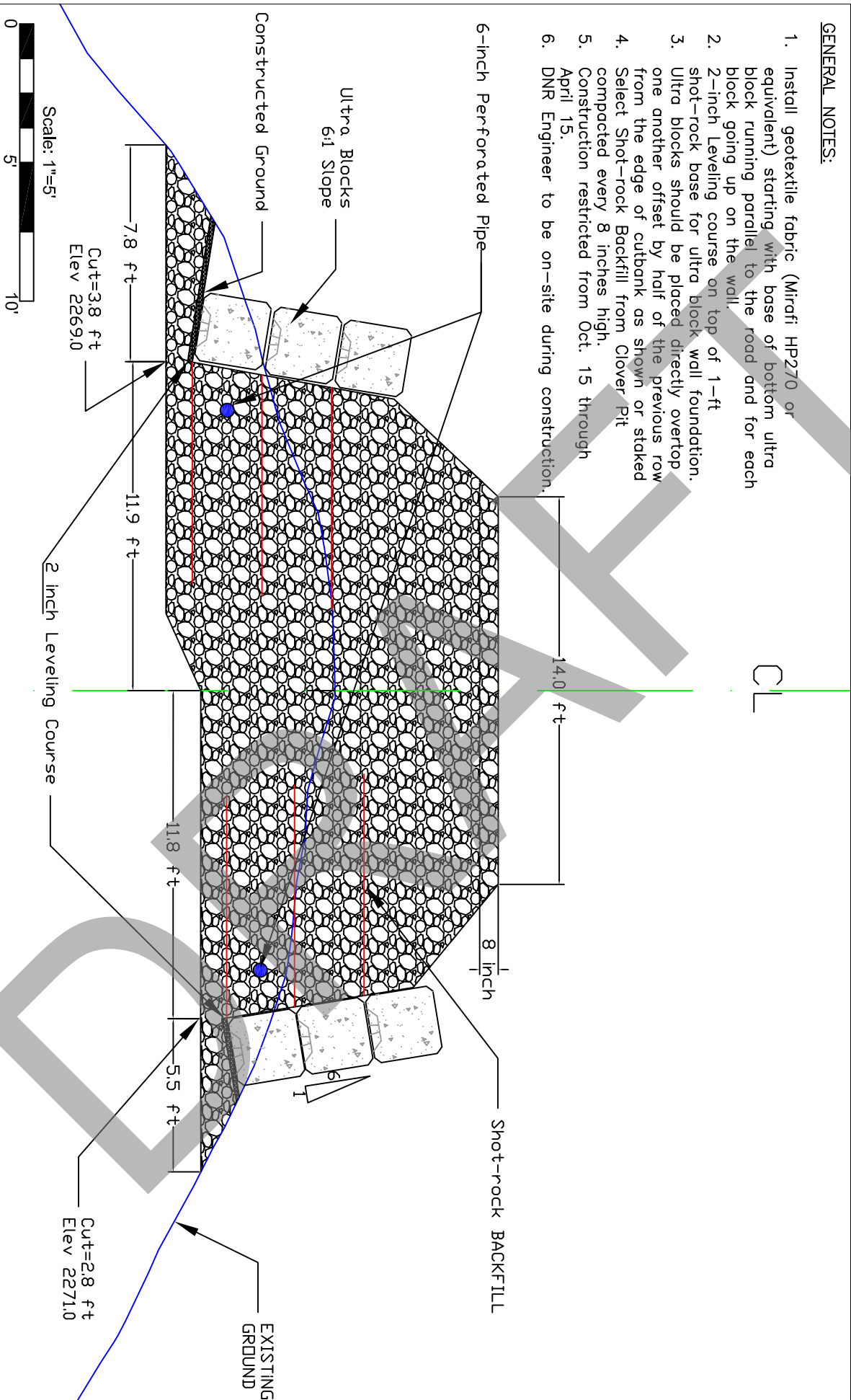


Location: 124.3135104W, 481293482N	General Notes Addition	11-28-23	MKG
 WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES			
FIGURE 4 OF 8			

Blue View Spur 4+95 Ultra Block Wall STA 2+30 Cross-Section View

GENERAL NOTES:

1. Install geotextile fabric (Mirafi HP270 or equivalent) starting with base of bottom ultra block running parallel to the road and for each block going up on the wall.
2. 2-inch Leveling course on top of 1-ft shot-rock base for ultra block wall foundation. Ultra blocks should be placed directly overtop one another offset by half of the previous row from the edge of cutbank as shown or stacked.
3. Select Shot-rock Backfill from Clover Pit compacted every 8 inches high.
4. Construction restricted from Oct. 15 through April 15.
5. DNR Engineer to be on-site during construction.

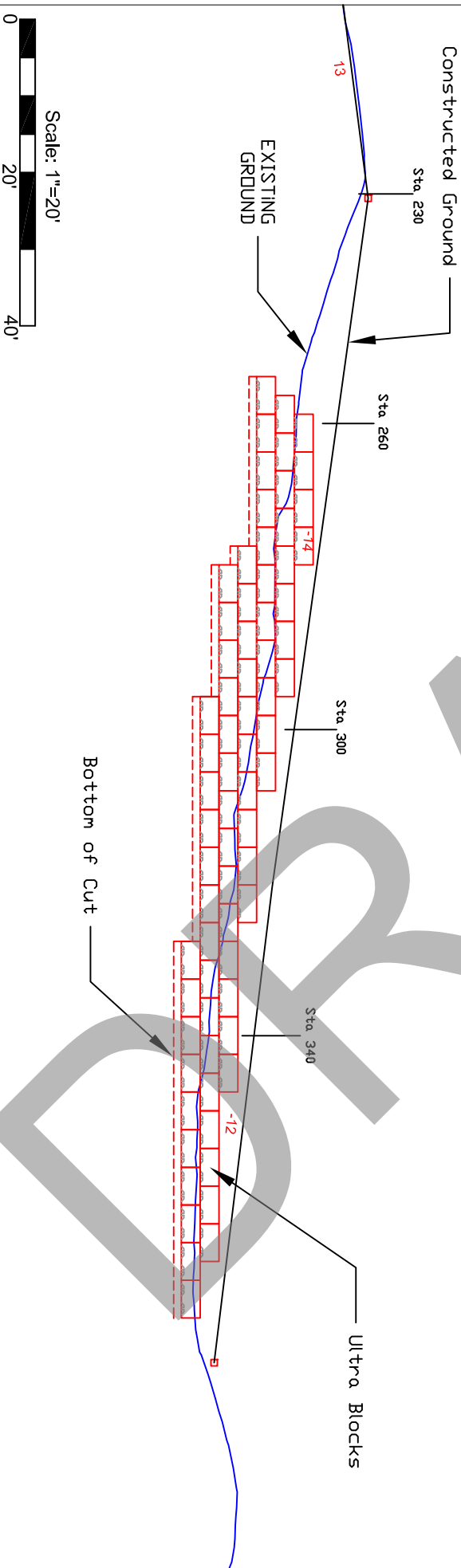



Location: 124.3135104W, 481293482N	General Notes Addition	11-20-23	MKG
 WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES			
FIGURE 5 of 8			

Blue View Spur 4+95 Ultra Block Wall Left Profile View

GENERAL NOTES:

1. Install geotextile fabric (Mirafi HP270 or equivalent) starting with base of bottom ultra block running parallel to the road and for each block going up on the wall.
2. 2-inch leveling course on top of 1-ft shot-rock base for ultra block wall foundation.
3. Ultra blocks should be placed directly overtop one another offset by half of the previous row from the edge of cutbank as shown or staked.
4. Select Shot-Rock Backfill from Clover Pit compacted every 8 inches high.
5. Construction restricted from Oct. 15 through April 15.
6. DNR Engineer to be on-site during construction.

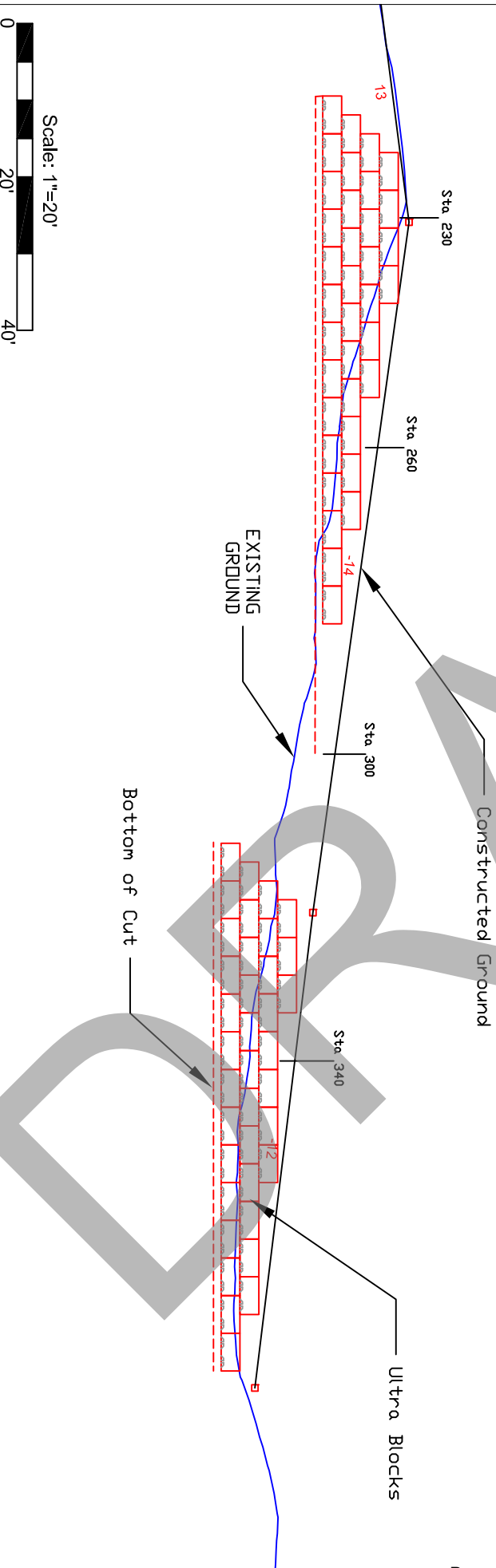


Location: 124.3135104V, 48.1293482N	General Notes Addition	11-20-23	MKG
 WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES			
FIGURE 6 of 8			

Blue View Spur 4+95 Ultra Block Wall Right Profile View

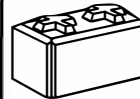
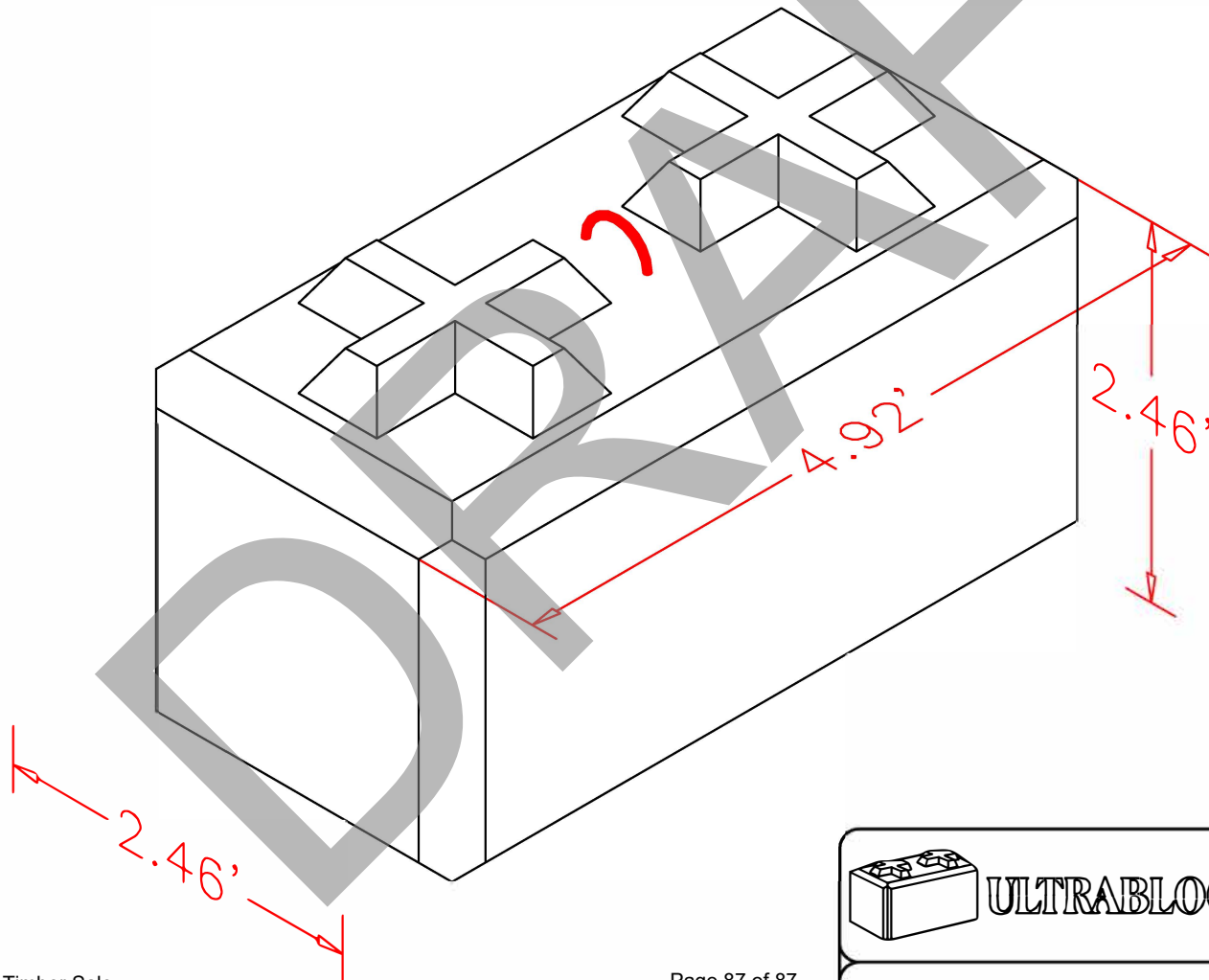
GENERAL NOTES:

1. Install geotextile fabric (Mirafi HP270 or equivalent) starting with base of bottom ultra block running parallel to the road and for each block going up on the wall.
2. 2-inch Leveling course on top of 1-ft shot-rock base for ultra block wall foundation.
3. Ultra blocks should be placed directly overtop one another offset by half of the previous row from the edge of cutbank as shown or staked
4. Select Shot-rock Backfill from Clover Pit compacted every 8 inches high.
5. Construction restricted from Oct. 15 through April 15.
6. DNR Engineer to be on-site during construction.



Location: 124.3135104V, 481293482N	General Notes Addition	11-20-23 MKG	 <p>WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES</p>	<p>FIGURE 7 of 8</p>

FULL SIZE BLOCK DETAIL



ULTRABLOCK, INC.

815 N.E. 172nd Ave.
VANCOUVER, WA 98684
800-377-3877 PH
360-694-0281 FAX