

UNITED STATES DEPARTMENT OF AGRICULTURE



FOREST SERVICE--REGION SIX  
WILLAMETTE NATIONAL FOREST  
MIDDLE FORK RANGER DISTRICT

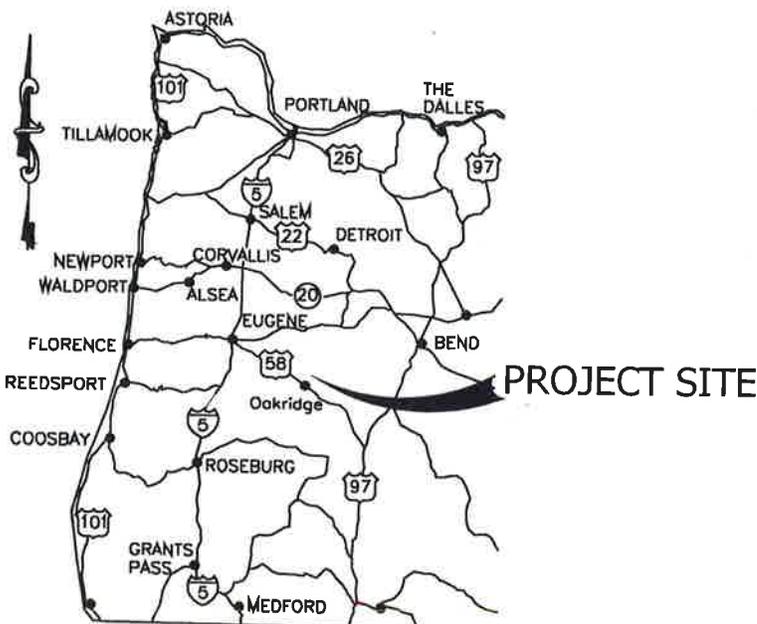


Project located in Lane County, OR

PLANS FOR  
**HIGH THIN TIMBER SALE**

ROADS		
ROAD NO.	LENGTH	TYPE OF WORK
1928-190	0.70 MILES	RECONSTRUCTION
1928-210	2.68 MILES	RECONSTRUCTION
2400-029	0.70 MILES	RECONSTRUCTION
2404	0.42 MILES	RECONSTRUCTION

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**WESTERN OREGON  
PROJECT LOCATION MAP**

- STATE HIGHWAY
- FEDERAL HIGHWAY
- INTERSTATE HIGHWAY



DESIGNED BY: Mike Larman	DATE
<i>Mike Larman</i>	3/22/16
REVIEWED BY: Michael Howard	DATE
<i>Michael Howard</i>	4/4/16
REVIEWED BY (DEVELOPMENT ENGINEER): JEFF CASWELL	DATE
<i>Jeff Caswell</i>	4/6/16
RECOMMENDED BY (ACT. DISTRICT ENGINEER): KEN KITTRELL	DATE
<i>Ken Kittrell</i>	3/23/17
APPROVED BY (ACT. DISTRICT RANGER): TIM LAHEY	DATE
<i>Tim Lahey</i>	3/28/16
APPROVED BY (FOREST ENGINEER): DARREN LEMON	DATE
<i>Darren Lemon</i>	4/6/2016



General Notes:

1. Contractor shall complete a utility locate prior to starting any reconstruction work. Call 811.
2. Salvage existing aggregate during culvert installation and use as bedding and initial backfill material.
3. Designated disposal site(s) are identified on the plans. The Contracting Officer will flag the disposal areas prior to placement of material. For all excess or unsuitable materials, place in smooth uniform layers and slope to drain. Disposal area development and shaping is indirect to items 21201.
4. All culvert installations/replacements with flowing water are considered stream channels. Replace culverts when stream channels are dry or during instream work period. Dewatering will be deleted if there is no water in the stream when work is done. The instream work period is July 1 to August 31. Additional timing / date restrictions, if applicable are included in C6.24 and C6.315 of the timber sale provisions and supplemental specification FSSS 156.05.
5. All new culvert installations require partial inlet bevel cut (indirect cost to corresponding culvert installation).
6. Backfill over pipes with a minimum of 1V : 1.5'H fill slope and 1' shoulders.
7. Do not undercut existing backslopes when cleaning and/or reconstructing roadway ditch.
8. Maintain all construction staking on the project until final inspection and acceptance.
9. Spread government furnished straw over disturbed soil at all culvert installations, disposal areas, and other disturbed ground flatter than 1:1, excluding ditches. Straw shall be applied a minimum of 2" thick so that no gaps exist between disturbed soil and matrix. Place seed at a rate of 10 lbs per acre. Straw and seed is stored at the Flat Creek Work Center, located on Forest Service Road 24, 2 miles east of the town of Oakridge. Contact the Contracting Officer to arrange pick up.
10. Dispose of inlet beveled cut culvert pieces by removing from government land according to FSSS 203.05, method a.
11. Recondition turnouts and curve widening with the basic roadbed, to match existing dimensions existing of the ground.
12. Clearing and grubbing of trees during culvert installations is considered indirect to corresponding culvert installations. Logs meeting utilization standards (see section 201.04) are to be limbed, separated, and decked adjacent to the work area as designated by the Contracting Officer. Dispose of slash according to subsection FSSS 203.05, disposal method (f).
13. Road reconstruction shall be completed between June 1st to October 31st.
14. Construction tolerance class D, for all roads.



**HIGH THIN TIMBER SALE**

**GENERAL NOTES**

SHEET NUMBER TOTAL SHEETS

3

19

PACIFIC NORTHWEST REGION

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITIES	REMARKS
20253	Removal of individual trees, miscellaneous: disposal of tops & limbs (f) & logs (f)	Each	2	
20401	Roadway excavation, compaction method E, finishing method B	Cubic Yard*	26	For fill repair method A.
32207	Aggregate subbase, grading A, compaction method B	Cubic Yard*	600	Commercial Source.
* Denotes contract quantity				



**HIGH THIN TIMBER SALE**

**ROAD 1928-190 ESTIMATE OF QUANTITIES**

SHEET NUMBER TOTAL SHEETS

4

19

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITIES	REMARKS
15101	Mobilization	Lump Sum	All	Includes fire protection, equipment cleaning, and temporary traffic control for all project roads.
20253	Removal of individual trees, miscellaneous; disposal of tops & limbs (f) & logs (f)	Each	5	
20358	Removal of corrugated metal pipe, disposal method (a)	Each	2	
20404	Unclassified borrow, compaction method B	Cubic Yard*	50	Includes removal and replacement of any shortage or unsuitable material encountered during work on all roads. If not used pay item shall be deleted. Commercial Source.
20419	Drainage excavation, type culvert outlet ditch	Foot	225	
21201	Linear grading	Mile	2.68	See sheet 17 for details. Includes constructing new ditchline and cutslope where no ditch exists. Also includes placement of straw wattles in front of every culvert as staked by Contracting Officer. Designated disposal area located on Road 1928-210, MP 0.74, left side.
25104	Keyed riprap, class 4	Cubic Yard*	3	Commercial Source.
32207	Aggregate subbase, grading A, compaction method B	Cubic Yard*	1515	Commercial Source.
60276A	18-inch corrugated aluminized steel pipe, 0.064-inch thickness, method B	Foot	172	Includes bands, gaskets, and necessary hardware.
60651	18-inch full-circle outlet pipe	Foot	20	Includes anchors and wire required for installation. 0.064-inch thickness.
62558	Seeding and mulching, dry method	Lump Sum	All	Includes work on all disturbed areas for all project roads. Government furnished straw and seed.
* Denotes contract quantity				



## HIGH THIN TIMBER SALE

### ROAD 1928-210 ESTIMATE OF QUANTITIES

SHEET NUMBER TOTAL SHEETS

5 19

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITIES	REMARKS
15755	Dewatering structure	Each	5	Dewatering for culvert installations.
20253	Removal of individual trees, miscellaneous: disposal of tops & limbs (f) & logs (f)	Each	2	
20358	Removal of corrugated metal pipe, disposal method (a)	Each	5	
20419	Drainage excavation, type culvert outlet ditch	Foot	200	
30359	Roadway reconditioning, compaction method E	Mile	0.70	Haul material pulled from ditch reconditioning, slough and slide removal, and logs in ditch to disposal area located on Road 2400-029, MP 0.24, left side. Includes placement of straw wattles in from of every culvert as staked by Contracting Officer.
32207	Aggregate subbase, grading A, compaction method B	Cubic Yard*	125	Commercial Source.
60276A	18-inch corrugated aluminized steel pipe, 0.064-inch thickness, method B	Foot	40	Includes bands, gaskets, and necessary hardware.
60276B	24-inch corrugated aluminized steel pipe, 0.079-inch thickness, method B	Foot	234	Includes bands, gaskets, and necessary hardware.
60651	18-inch full-circle outlet pipe	Foot	10	Includes anchors and wire required for installation. 0.064-inch thickness.
* Denotes contract quantity				



## HIGH THIN TIMBER SALE

### ROAD 2400-029 ESTIMATE OF QUANTITIES

SHEET NUMBER TOTAL SHEETS

6

19

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITIES	REMARKS
15755	Dewatering structure	Each	2	Dewatering for culvert installations.
20253	Removal of individual trees, miscellaneous: disposal of tops & limbs (f) & logs (f)	Each	2	
20358	Removal of corrugated metal pipe, disposal method (a)	Each	2	
32207	Aggregate subbase, grading A, compaction method B	Cubic Yard*	20	Commercial Source.
60276B	24-inch corrugated aluminized steel pipe, 0.079-inch thickness, method B	Foot	82	Includes bands, gaskets, and necessary hardware.

\* Denotes contract quantity



## HIGH THIN TIMBER SALE

### ROAD 2404 ESTIMATE OF QUANTITIES

SHEET NUMBER TOTAL SHEETS

7

19

PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK
0.00				Junction with Road 1928-210, right side. Beginning of project.
	32207	600	Cubic Yard*	Begin placement of 4-inch depth of crushed aggregate, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transition. Includes curve widening.
0.06				Junction with Road 1928-194, left side.
0.07				Existing gate.
0.09	20401	26	Cubic Yard*	Excavate and recompact 25ft long x 4 ft wide x 4 ft deep for method A fill repair, compaction method E.
0.70				End placement of 4-inch depth of crushed aggregate.
	20253	2	Each	Fall danger trees as designated by Contracting Officer.
				End of project.



## HIGH THIN TIMBER SALE

### ROAD 1928-190 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

8

19

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK
0.00				Junction with Road 1928, right side. "Dead Mountain Road." Beginning of project.
0.19	21201	2.49	Mile	Begin linear grading. See typical on page 17.
	32207	1255	Cubic Yard*	Begin placement of 4-inch lift of crushed aggregate, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transition. Includes curve widening.
0.21				Junction with Road 1928-208, right side.
	20358	1	Each	Remove existing 18-inch CMP.
	60276A	34	Foot	Install 18-inch CMP at same skew and grade.
	20419	50	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.36				Junction with un-named road, right side. Existing 18-inch CMP.
	20419	50	Foot	Construct culvert outlet ditch.
0.42				Junction with Road 1928-170, right side.
0.46	20358	1	Each	Remove existing 18-inch CMP.
	60276A	30	Foot	Install 18-inch CMP at same skew and grade.
	20419	15	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.52	60276A	34	Foot	Install 18-inch CMP at 70 degree skew and 2% grade (as staked).
	20419	15	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.67				Existing 18-inch CMP.
	25104	1	Cubic Yard*	Construct splash apron (5' L x 3' W x 2' D).
0.74				Disposal area, left side.
0.77	60276A	30	Foot	Install 18-inch CMP at 70 degree skew and 2% grade (as staked).
	20419	15	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.79				Junction with un-named road, left side.
0.91				Existing 18-inch CMP.
	20419	25	Foot	Construct culvert outlet ditch.



## HIGH THIN TIMBER SALE

### ROAD 1928-210 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

9 19

PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK
0.98				Junction with un-named road, right side.
1.03	20419	25	Foot	Existing 18-inch CMP. Construct culvert outlet ditch.
1.17				Junction with Road 1928-102, left side.
1.23				Junction with Road 1928-188, right side.
1.37	20419	15	Foot	Existing 18-inch CMP. Construct culvert outlet ditch.
1.45	25104	1	Cubic Yard*	Existing 18-inch CMP. Construct splash apron (5' L x 3' W x 2' D).
1.65				Junction with Road 1928-190, right side. End placement of 4-inch depth of crushed aggregate,
1.72	20419	15	Foot	Existing 18-inch CMP. Construct culvert outlet ditch.
1.90	60276A	22	Foot	Install 18-inch CMP at 70 skew and 2% grade (as staked).
	60651	10	Foot	Install culvert downspout.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
2.00	60276A	22	Foot	Install 18-inch CMP at 70 skew and 2% grade (as staked).
	60651	10	Foot	Install culvert downspout.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
2.15				Junction with Road 1928-200, left side.
2.45	25104	1	Cubic Yard*	Existing 18-inch CMP. Construct splash apron (5' L x 3' W x 2' D).
2.61				Existing gate.
2.68				Junction with Road 1928-212, right side.
	32207	200	Cubic Yard*	Place spot rock as designated by Contracting Officer.
	20253	5	Each	Fall danger trees as designated by Contracting Officer.
				End linear grading.
				End of project.



## HIGH THIN TIMBER SALE

### ROAD 1928-210 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

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19

PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK
0.00				Junction with Road 2400, left side.
				Beginning of project.
	30359	0.70	Mile	Begin reconditioning of roadway. Recondition ditch for full length of project and grub as necessary. Haul material from ditch reconditioning, slough and slide removal to disposal area. Scatter all logs and woody debris from top of cutbank to the opposite road shoulder outside clearing limits. Remove all standing trees from roadside shoulder to bottom of ditch line. Scarify minimum 1" below the depth of all potholes, washboards or surface irregularities.
0.05				Existing gate.
0.10	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276B	42	Foot	Install 24-inch CMP at same skew and grade.
	20419	75	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.16	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276B	42	Foot	Install 24-inch CMP at same skew and grade.
	20419	50	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.24				Designated disposal area, left side.
0.29	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 24-inch CMP.
	60276B	44	Foot	Install 24-inch CMP at same skew and grade.
	20419	25	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.36	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276B	44	Foot	Install 24-inch CMP at same skew and grade.
	20419	25	Foot	Construct culvert outlet ditch.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.39				Trail crossing.



## HIGH THIN TIMBER SALE

### ROAD 2400-029 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

11

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MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK
0.47	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276B	62	Foot	Install 24-inch CMP at same skew and grade.
	20419	25	Foot	Construct culvert outlet ditch.
	32207	25	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.50	60276A	40	Foot	Install 18-inch CMP at 70 degree skew and 2% grade (as staked by Contracting Officer).
	60651	10	Foot	Install 18-inch outlet pipe.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.67				Trail crossing.
0.70	32207	50	Cubic Yard*	Place spot rock as designated by Contracting Officer.
	20253	2	Each	Fall danger trees as designated by Contracting Officer.
				End of roadway reconditioning.
				End of project.



## HIGH THIN TIMBER SALE

### ROAD 2400-029 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

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PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK
0.00				Junction with Road 2400, left side. Beginning of project.
0.02				Existing gate.
0.15	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276B	36	Foot	Install 24-inch CMP at same skew and grade.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.21	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276B	46	Foot	Install 24-inch CMP at same skew and grade.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transition.
0.38				Designated Water Source.
0.42				Junction with Road 2404-212, right side.
	20253	2	Each	Fall danger trees as designated by Contracting Officer.
				End of project.



## HIGH THIN TIMBER SALE

### ROAD 2404 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

13

19

ROAD NUMBER	MILE POST	DESIGNED			AS-BUILT			INSTALLATION DETAILS			RIPRAP		DEWATER	INLET DITCH (FT)	OUTLET DITCH (FT)	REMARKS	
		CMP			CMP OUTLET PIPE	PIPE		OUTLET PIPE	TYPE	SKEW (°)	GRADE (%)	MACHINE PLACED					
		DIAMETER (INCH)	LENGTH (FT)	THICKNESS (INCH)		DIAMETER	LENGTH					INLET (CY)					OUTLET (CY)
<b>1928-210</b>	0.21	18	34	0.064				#	#	#				50			
	0.36	18												50	Existing culvert.		
	0.46	18	30	0.064				#	#	#				15			
	0.52	18	34	0.064				3	70	2				15	Install as staked.		
	0.67	18									1				Existing culvert.		
	0.77	18	30	0.064				3	70	2				15	Install as staked.		
	0.91	18												25	Existing culvert.		
	1.03	18												25	Existing culvert.		
	1.37	18												15	Existing culvert.		
	1.45	18									1				Existing culvert.		
	1.72	18												15	Existing culvert.		
	1.90	18	22	0.064	10			2	70	2					Install as staked.		
	2.00	18	22	0.064	10			2	70	2					Install as staked.		
	2.45	18									1				Existing culvert.		
<b>2400-029</b>	0.10	24	42	0.079				#	#	#		X		75			
	0.16	24	42	0.079				#	#	#		X		50			
	0.29	24	44	0.079				#	#	#		X		25			
	0.36	24	44	0.079				#	#	#		X		25			
	0.47	24	62	0.079				#	#	#		X		25			
	0.50	18	40	0.064	10			2	70	2					Install as staked.		
<b>2404</b>	0.15	24	36	0.079				#	#	#		X					
	0.21	24	46	0.079				#	#	#		X					

# Skew, grade and type shall match removed installation unless otherwise noted.  
NOTE: Install hellically corrugated lock seam pipe with seam at inlet/outlet placed below horizontal center line.  
NOTE: Standard pipe corrugations shall be 2 2/3 inch x 1/2 inch unless otherwise noted.  
Some installations of culverts may require additional excavation below grade line (Indirect to pay item 602).



## HIGH THIN TIMBER SALE

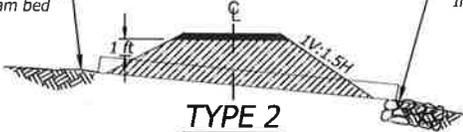
### DRAINAGE LISTING

SHEET NUMBER	TOTAL SHEETS
14	19

### CULVERT TYPES

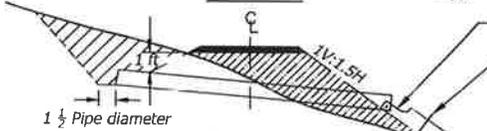
#### TYPE 1

Original ground or stream bed  
 Do not raise outlet above original ground or stream bed.  
 Install splash apron when specified



#### TYPE 2

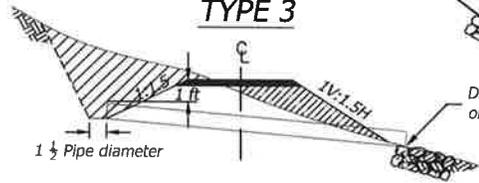
Flex elbow  
 Anchors (when specified)



Note:  
 Elbows and anchors are indirectly included in the pay item for the outlet pipe.

#### TYPE 3

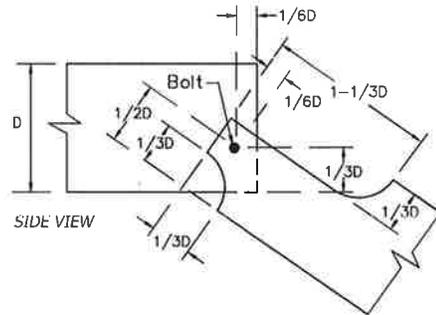
Install splash apron when specified



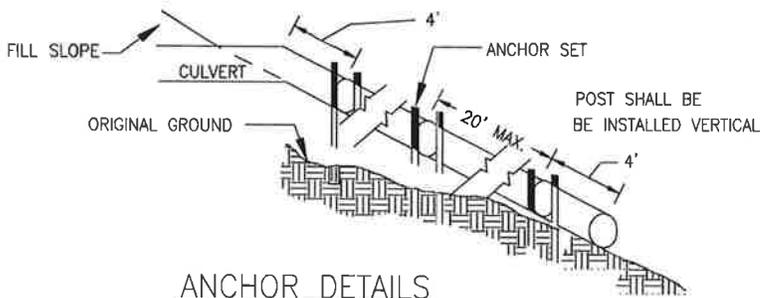
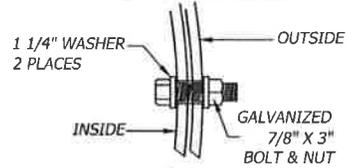
Drain outlet on natural ground or install splash apron when specified

Some installations of culverts may require additional excavation below grade line.

### FLEX ELBOW DETAIL FOR METAL PIPE



### BOLT DETAIL FOR METAL PIPE



### ANCHOR DETAILS

NOTE:  
 ANCHOR SETS SHALL CONSIST OF TWO 6' STEEL FENCE POSTS (AASHTO M 281) AND 3/8" GALVANIZED WIRE ROPE. PROVIDE 2 TIGHT WRAPS AROUND THE PIPE AND BOTH ANCHOR POSTS. USE 2 CABLE CLAMPS AT EACH POST TO SECURE THE ENDS.

### WIRE ROPE DETAIL



HIGH THIN TIMBER SALE

DRAINAGE CONSTRUCTION DETAILS

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

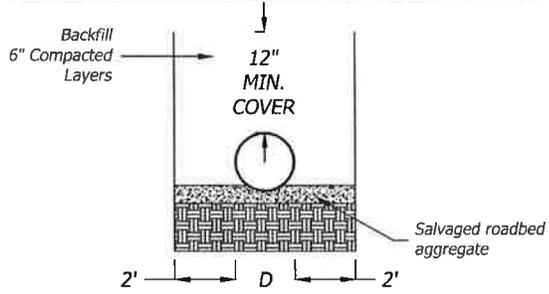


SHEET NUMBER TOTAL SHEETS

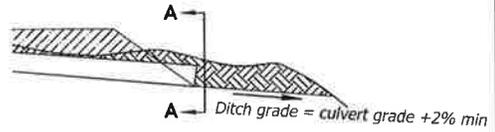
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### CULVERT BEDDING & BACKFILL TYP.

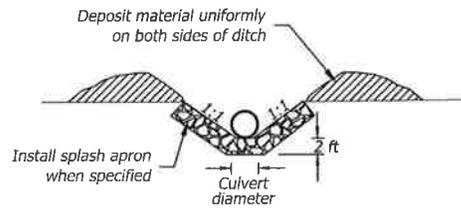


### OUTLET DITCH

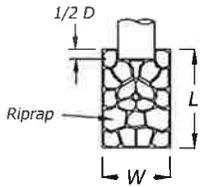


Note: Seed ditch and berm when specified

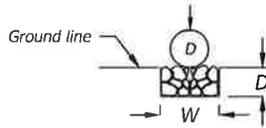
### OUTLET DITCH SECTION A-A



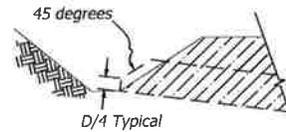
### SPLASH APRON PLAN VIEW



### SPLASH APRON ELEV. VIEW



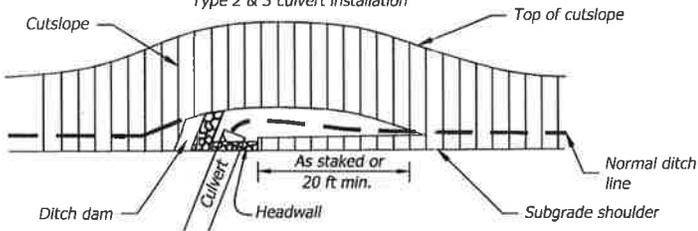
### PARTIAL BEVELED INLET DETAIL



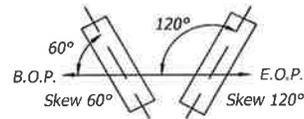
Note: Required for all new culvert installations.

### CATCH BASIN DETAIL

PLAN VIEW  
Type 2 & 3 culvert installation



### SKEW DIAGRAM



Drawings not to scale

HIGH THIN TIMBER SALE

DRAINAGE CONSTRUCTION DETAILS

PACIFIC NORTHWEST REGION

U.S.D.A FOREST SERVICE



SHEET NUMBER TOTAL SHEETS

16

19

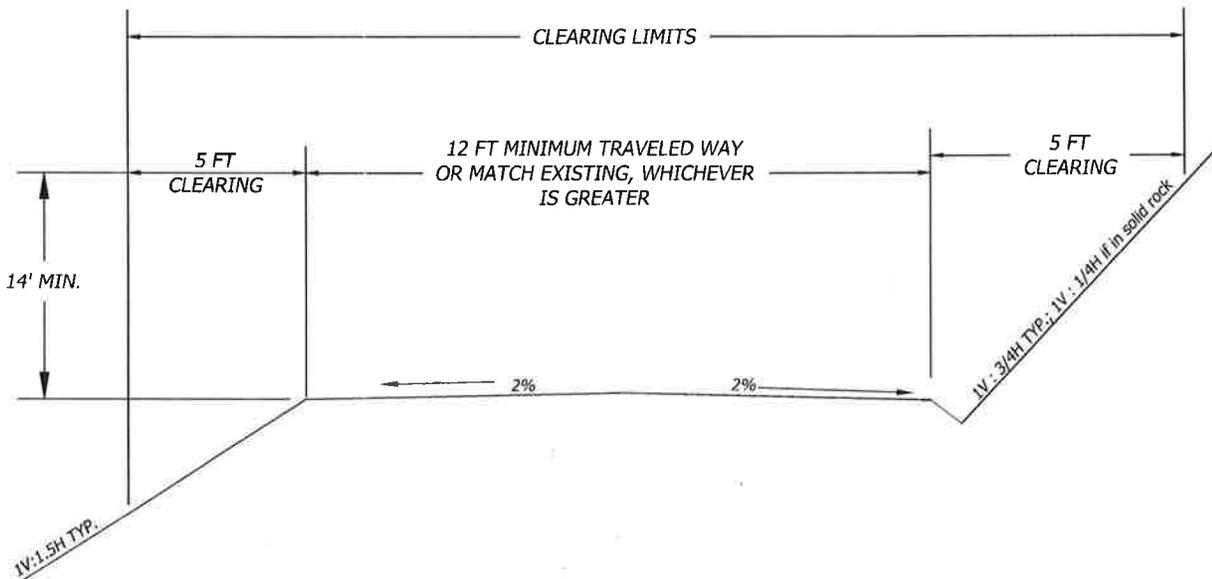
HIGH THIN TIMBER SALE

LINEAR GRADING TYPICAL



SHEET NUMBER TOTAL SHEETS

17 19

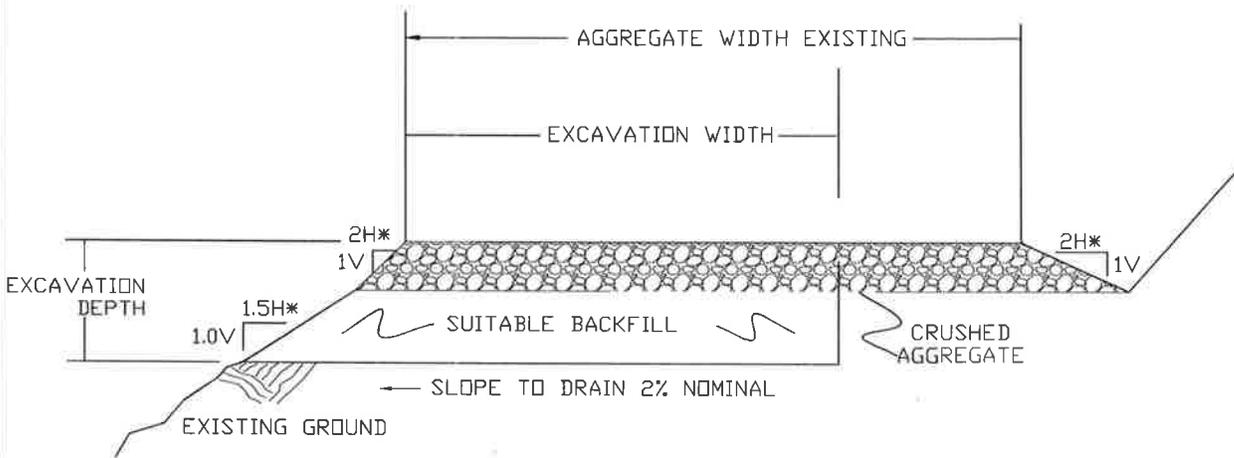


**CONSTRUCTION NOTES:**

REFER TO FSSS 212 - LINEAR GRADINGS & 201 - CLEARING AND GRUBBING.  
 ALL WORK IS CONSIDERED TO BE INCIDENTAL TO 21201.  
 APPLY CURVE WIDENING AS MARKED BY THE CONTRACING OFFICER.  
 CONSTRUCTION OF NEW DITCH LINE IS CONSIDERED INCIDENTAL TO 21201.  
 LOGS MEETING UTILIZATION STANDARDS (SEE SECTION 201.01) ARE  
 TO BE LIMBED, SEPARATED, AND DECKED ADJACENT TO THE WORK AREA.  
 DISPOSE OF SLASH ACCORDING TO SUBSECTION FSSS 203.05, DISPOSAL METHOD (f).  
 CONTRACTOR SHALL COMPLETE A UTILITY LOCATE AND PROTECT EXISTING POWER LINES.  
 CONSTRUCTION OF NEW CUT SLOPE MAY REQUIRE A ROCK HAMMER AND IS INCIDENTAL  
 TO PAY ITEM 21201, AND ALONG WITH HAULING MATERIAL TO DISPOSAL SITE.  
 STAKE EACH STRAW WATTLES DOWN A MINIMUM OF 3 STAKES PER WADDLE, 1 FOOT  
 BELOW SURFACE ELEVATION IN DITCH LINE AND PLACE IN FRONT OF ALL NEW AND  
 EXISTING CULVERTS.

Drawings not to scale

**METHOD A REPAIR**  
 PROFILE VIEW (NOT TO SCALE)



**NOTES:**

- 1) DRAWINGS ARE NOT TO SCALE.
- 2) LIMITS OF EXCAVATION ARE MARKED ON THE GROUND BY THE CO.
- 3) DIMENSIONS MARKED WITH AN ASTERICK MAY BE ADJUSTED BY THE CO IN ORDER TO FIT THE EXISTING SITE GEOMETRY.
- 4) SEGMENTS OF FILL REPAIRS THAT CANNOT BE ROLLER COMPACTED SHALL BE COMPACTED BY MECHANICAL COMPACTOR TO OBTAIN LIKE COMPACTION.
- 5) EXCAVATION QUANTITIES INCLUDE QUANTITIES TO DAYLIGHT FILL REPAIRS.

Drawings not to scale

HIGH THIN TIMBER SALE

FILL REPAIR METHOD A TYPICAL

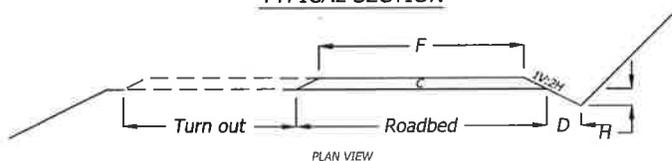
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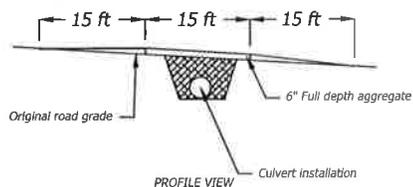


SHEET NUMBER	TOTAL SHEETS
18	19

**TYPICAL SECTION**



**CULVERT SURFACE ROCK REPLACEMENT FOR AGGREGATE ROADS ONLY**



ROAD NUMBER	BEGINNING MILE POST	ENDING MILE POST	CONSTRUCTION TOLERANCE	OUTSLOPED INSLOPED CROWNED	ROADBED WIDTH (FT)	DITCH DIMENSIONS (FT)		PAVEMENT STRUCTURE		
								TRAVELED WAY WIDTH (FT)	COMPACTED DEPTH (IN)	SIDE SLOPE RATIO
										AGG
1928-190	0.00	0.70	D	2 O	14*	2	1	12*	4	1V:2H
1928-210	0.19	1.65	D	2 C	14*	2	1	12*	4	1V:2H
1928-210	1.65	2.68	D	2 C	14*	2	1	12*	N/A	1V:2H
2400-029	0.00	0.70	D	2 C	14*	2	1	12*	N/A	1V:2H
2404	0.00	0.42	D	2 C	14*	2	1	12*	N/A	1V:2H

\* Widths are minimum. Reconstruct roadbed to match existing conditions.

Drawings not to scale.

HIGH THIN TIMBER SALE

RECONSTRUCTION TYPICALS

PACIFIC NORTHWEST REGION

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SHEET NUMBER TOTAL SHEETS

19

19