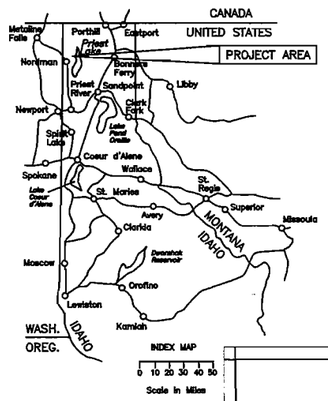
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION ONE
DRAWINGS FOR PROPOSED FOREST DEVELOPMENT ROADS

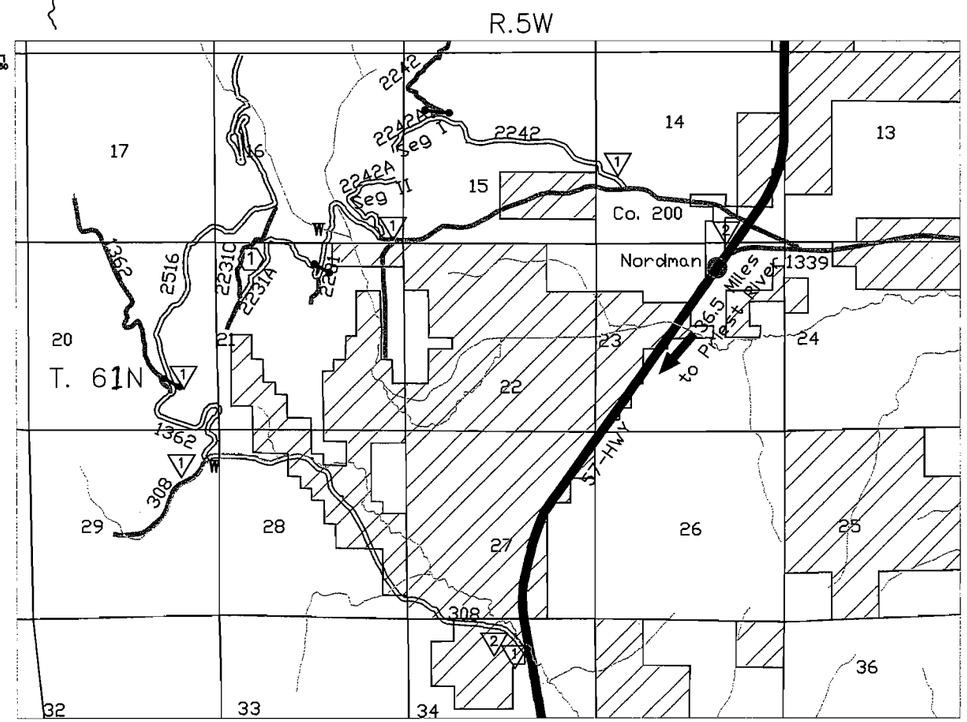
NICKELPLATE

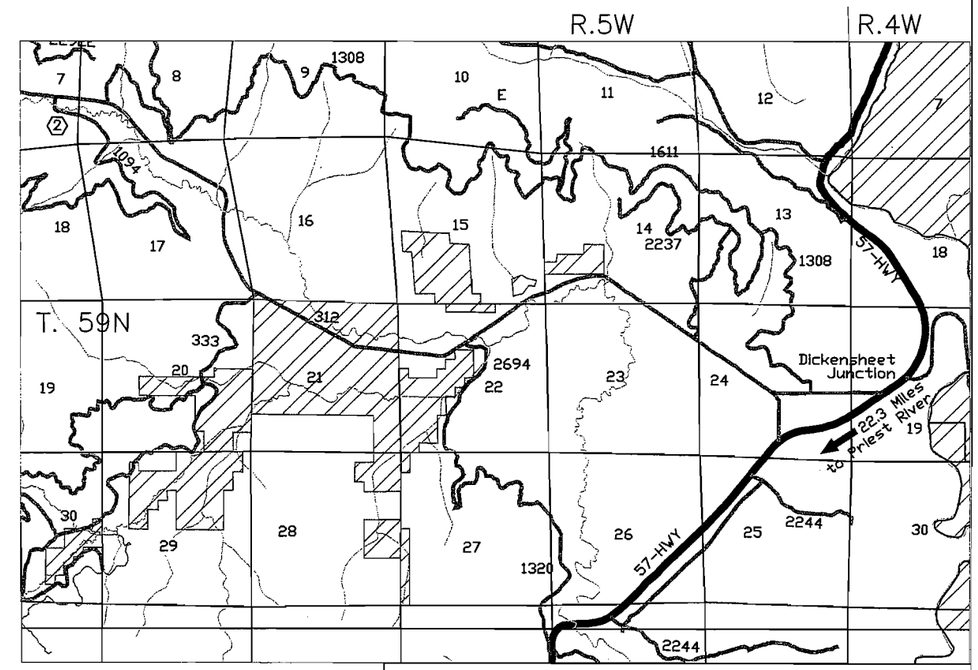
IDAHO PANHANDLE NATIONAL FORESTS – PRIEST LAKE RANGER DISTRICT – BONNER COUNTY, IDAHO

INDEX TO SHEETS

1 Title Sheet
2 Sign Plan
3 Summary of Quantities
4 Project Work Descriptions
5 Project Work Descriptions
6 Project Work Descriptions and General notes
7 Typicals
8 Details
9 Details
10 Coupling Detail 1
11 Coupling Detail 2
12 Coupling Detail 3
13 Culvert Details







LEGEND:

- State Highway
- Existing Roads
- Reconstruction Roads
- Existing Gate
- W Water Source
- (1) Pit Run Source 1
- (2) Riprap Source 2
- (1) "Road Construction Ahead", 30" x 30" sign
  Place at beginning of roads undergoing reconstruction and with in 500' of activities that create a hazard.
- (2) "Trucks Hauling", 30" x 30" sign
  Place on roads during rock hauling

Traffic Control signs shall conform to the "Manual of Uniform Traffic Control Devices" & The Traffic Control Plan, or as Directed By the C.O.

VICINITY MAPS

Not To Scale

Call Before You Dig
811 or 1-800-626-4950

The following certify that this project is in conformance with environmental assessment requirements.

Recommended and certified to be technically correct

Rick Driggs 6/9/2010
Project Team Leader

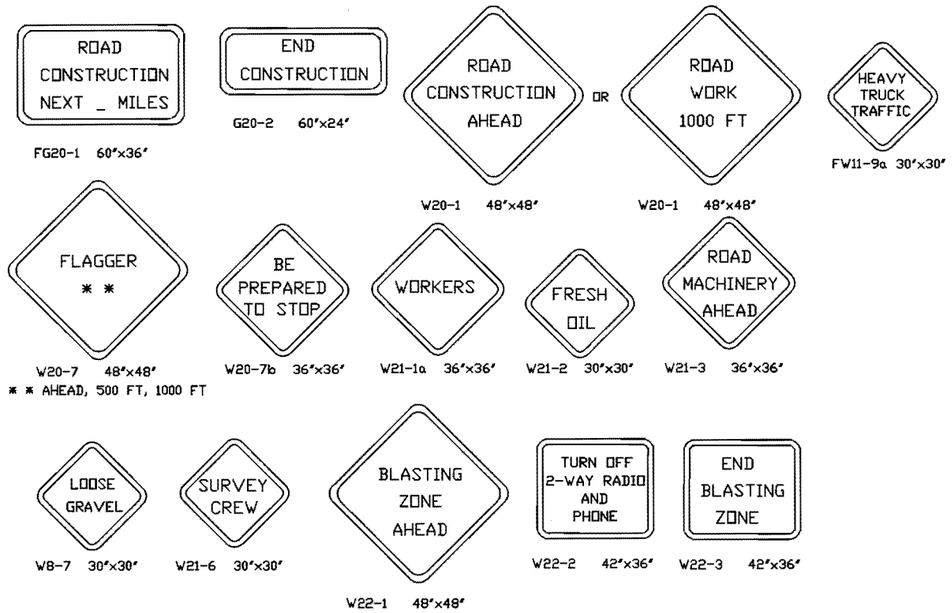
Approved and certified to be in conformance with sound engineering practice for safety, structural integrity, and operational requirements.

Forest Engineer

Approved:

DeWayne 6/9/10
District Ranger Date

Warning Signs - Black on Orange



Regulatory Signs - Black on White

TYPICAL WARNING & REGULATORY SIGNS (AS PER MUTCD)

GENERAL SIGN & WARNING DEVICE NOTES

1. The Contractor shall be responsible for furnishing, installing, maintaining, and removeing signs and warning devices in conformance with the most current revision of the Manual on Uniform Traffic Control Devices (MUTCD) and the approved traffic safety sign plan.

2. A detailed "Traffic Safety Sign Plan" shall be submitted by the Contractor for Approval by the Contracting Officer. The plan shall address types, amounts, locations and timing of signs and warning devices to be used for a specific road or activity.

3. Signs and warning devices shall be installed at the approved locations prior to starting any work activities.

4. During periods of non-work (weekends, holidays, end of work day, etc.) all signs shall be covered or removed.

5. Additional signs and warning devices shall be installed by the Contractor if conditions change.

6. All signs and warning devices shall be removed from the project upon completion and acceptance of the work.

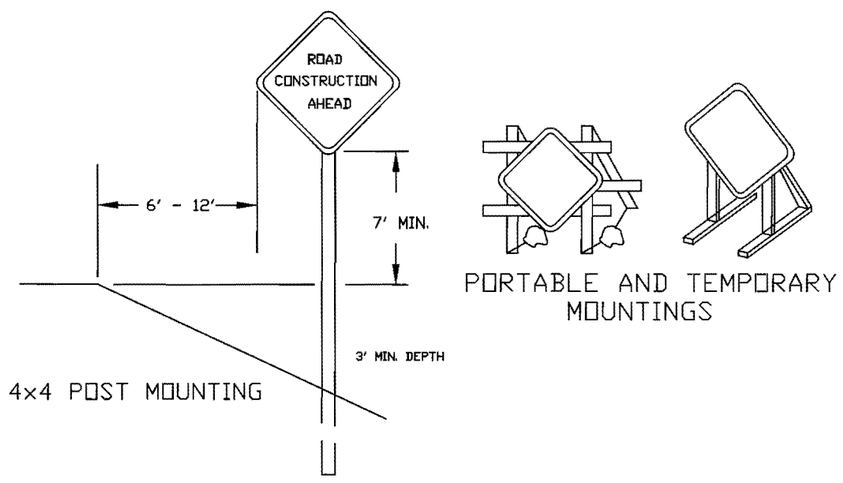
7. Payment for furnishing, installing, maintaining, and removing signs and warning devices and for preparing the plan shall be considered incidental to pay items under Section 151 - Mobilization. No seperate payment will be made.

8. Warning signgs shall be black symbol/message/border on orange background, as per MUTCD.

9. Regulatory signs shall be black symbol/message/border on white background, as per MUTCD.

10. All signs shall be either reflectorized with a material that has a smooth, sealed outer surface, or iluminated to show approximately the same shape and color day and naght.

11. "Home-made" signs shall not be allowed. Signs shall not be attached to trees or other sign posts unless approved by the Contracting Officer.



TYPICAL SIGN INSTALLATION (AS PER MUTCD)

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Forest: Idaho Panhandle National Forests
Project Name: Nickelplate

Sheet Title: SIGN Plan

Sheet 2 of 13

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	METHOD OF MEASURE	UNIT	REVISION DATE	308	1362	2231	2231A	2242	2242A Seg I	2242A Seg II	2516	Project Totals
				ROAD NUMBER	308	1362	2231	2231A	2242	2242A Seg I	2242A Seg II	2516	
				MILE POST (MILES)	2.3	0.82	0.83	0.66	1.26	0.31	0.73	2.93	
					QUANTITIES								
15101	Mobilization	LSQ	Lump Sum	2006	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20206	Removal of individual stumps, Disposal Method f - (Scatter)	AQ	Each	2006			1.00						1.00
20301	Removal of Culverts	AQ	Each	2006	1.00		1.00	2.00	1.00				5.00
20407	Select borrow, compaction method C, finishing method A, (Source 1)	CQ	Cubic Yard	2010							40.00		40.00
20419A	Drainage excavation, type Outlet Ditch	AQ	Foot	2006	40.00		140.00		20.00	50.00			250.00
20419B	Drainage excavation, type Ditch	AQ	Foot	2006				780.00	200.00				980.00
20419C	Drainage excavation, type Drivable Water Bar	AQ	Foot	2006				200.00					200.00
20420	Drainage excavation, type Catch Basin	AQ	Each	2006	2.00		1.00	1.00	1.00				5.00
20426	Grade dips, Armored (class I riprap)	AQ	Each	2006			1.00	1.00	2.00				4.00
21250	Linear grading	CQ	Sta	2010						16.40			16.40
212551	Linear grading (Truck Turn Around)	CQ	Each	2010						1.00	1.00		2.00
25101A	Placed riprap, class I (Machine Placed - Source 2)	CQ	Cubic Yard	2006	20.00			30.00					50.00
25101B	Placed riprap, class V (Machine Placed - Source 2)	CQ	Cubic Yard	2006	10.00			210.00					220.00
25101C	Placed riprap, class III (Dumped - Source 2)	CQ	Cubic Yard	2006								10.00	10.00
30111	Aggregate surface course, grading F or G, compaction method A (Commercial Source)	CQ	Cubic Yard	2006	324.00		108.00	9.00			54.00		495.00
30122	Pit run maximum size 4", compaction method A (Source 1)	CQ	Cubic Yard	2006			190.00	160.00	460.00				810.00
30322	Road reconditioning, compaction method A	CQ	Mile	2006	2.30	0.82	0.83	0.66	1.26		0.73	2.93	9.53
30605	Calcium Chloride Flake @ 77% minimum concentration	AQ	Ton	2006	16.20	5.80							22.00
55701	Untreated structural timber and lumber (Bridge Running Planks)	CQ	MFBM	2006	0.24								0.24
55703	Treated structural timber and lumber (Bridge Guard Rails)	CQ	MFBM	2006	0.12								0.12
60211A	18 Inch Corrugated Steel Pipe 0.064 Inch Thickness, Method C	AQ	Foot	2009	56.00		26.00	72.00	30.00		24.00		208.00
60211B	24 Inch Corrugated Steel Pipe 0.075 Inch Thickness, Method C	AQ	Foot	2009	40.00			34.00					74.00
60712	Cleaning Bridges in place	CQ	Each	2006	1.00								1.00
62527	Seeding, Fertilizing, and Mulching, Dry Method	CQ	Acre	2006	0.02		0.01	0.05	0.01				0.09
63305	Posts, Pressure Treated Wood	AQ	Foot	2006	36.00								36.00
63306	Object markers, OM3	AQ	Each	2006	4.00								4.00

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Forest
Idaho Panhandle National Forests
Project Name
Nickelplate

Sheet Title
Summary of Estimated Quantities

Project Nickleplate
#
Contractor
Road # 308 **Miles** 2.30

Mile Post	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project					MP 34.02 SH57
	Begin Reconditioning of Roadbed	30322	2.3	MI	CQ	Here to jct w/1362, water incidental
	Begin CaCl Flake @77% min, pellet @ 94% min, Prep Mthd 1	30605	16.2	TON	AQ	See Note #1 on Sheet 6 of 13 16' width, 1.5#/SY, here to MP 2.3, water incidental
0.715	Removal of Culvert	20301	1	EA	AQ	Includes existing 24" culvert and piece on shoulder
	Install 24" CMP (incl culv excav), Steep Pipe .075 inch Thickness, Method C	60211B	40	LF	AQ	As staked
	Machine Placed Riprap, Class I	25101A	10	CY	CQ	Place at inlet on fill and in catch basin and at outlet on fill and below pipe and in ditch ahead, as marked
	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	270	CY	CQ	4" depth x 16' top, from 25' back of new pipe to MP0.96, as marked
1.905	Machine Placed Riprap, Class V	25101B	10	CY	CQ	Repair hole in fill and armor fill, as marked
	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	18	CY	CQ	4" depth x 16', as marked
1.980	Install 18" CMP (incl culv excav), Thickness: Steel 0.064 inch, Method C	60211A	28	LF	AQ	As staked
	Drainage Excavation, Type Catch Basin	20420	1	EA	AQ	
	Construct Outlet Ditches	20419A	20	LF	AQ	
	Machine Placed Riprap, Class I	25101A	5	CY	CQ	Place at inlet on fill and in catch basin and at outlet on fill and below pipe, as marked
	Seeding	62527	0.01	Acre	CQ	All disturbed areas
	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	9	CY	CQ	4" depth x 16' top, over new pipe, as marked
2.064	Install 18" CMP (incl culv excav), Steel Pipe 0.064 inch Thickness, Method C	60211A	28	LF	AQ	As staked
	Drainage Excavation, Type Catch Basin	20420	1	EA	AQ	
	Construct Outlet Ditches	20419A	20	LF	AQ	
	Machine Placed Riprap, Class I	25101A	5	CY	CQ	Place at inlet on fill and in catch basin and at outlet on fill and below pipe, as marked
	Seeding	62527	0.01	Acre	CQ	All disturbed areas
	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	9	CY	CQ	4" depth x 16' top, over new pipe, as marked
2.256	Bridge repair items	55701 55703 60712 63305 63306				See Bridge Details, Sheet 9 of 13
	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	18	CY	CQ	4" depth x 16' top, each side of bridge, as marked
2.300	End Reconditioning of Roadbed					
	End CaCl flake					
	End project					Jct Rd 1362 rt, Rd 308 continues

Project Nickleplate
#
Contractor
Road # 2242 **Miles** 1.26

Mile Post	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project Road 2242					Jct w/County Road 200, Reeder Creek, @ MP 0.68
	Begin Reconditioning of Roadbed	30322	1.26	MI	CQ	Maintain all grade dips. Repair as noted. Incidental.
	Begin Pit Run Aggregate (source 1)	30122	170	CY	CQ	6" depth x 12' top width, to MP 0.131
0.131	End Pit Run Aggregate					
0.152	Begin Pit Run Aggregate (source 1)	30122	50	CY	CQ	6" depth x 12' top width, to MP 0.185
0.185	End Pit Run Aggregate					
0.211	Begin Pit Run Aggregate (source 1)	30122	70	CY	CQ	6" depth x 12' top width, to MP 0.267
	Repair dip					outlet to drain
0.267	End Pit Run Aggregate					
0.402	Repair dip					outlet to drain
0.436	Construct outlet ditch	20419A	20	LF	AQ	As marked
0.518	Begin Pit Run Aggregate (source 1)	30122	130	CY	CQ	6" depth x 12' top width, to MP 0.610
0.610	End Pit Run Aggregate					End 20' past new culvert, as marked
	Removal of culvert	20301	1	EA	AQ	Remove existing culvert 30' back
	Install 18" CMP (incl culv excav), Thickness: Steel 0.064 inch, Aluminum 0.075 inch, Method C	60211A	30	LF	AQ	30' ahead, as staked
	Drainage Excavation, Type Catch Basin	20420	1	EA	AQ	
	Seeding	62527	0.01	Acre	CQ	All disturbed areas
0.706	Construct Grade Dip	20426	1	EA	AQ	10 CY Class I Riprap incidental
0.766	Construct Grade Dip	20426	1	EA	AQ	10 CY Class I Riprap incidental
0.868	Construct ditch	20419B	200	LF	AQ	As marked
0.906	End ditch construction					
1.015	Pit Run Aggregate	30122	10	CY	CQ	Spot, 6" depth x 12' top, as marked
1.058	Pit Run Aggregate	30122	20	CY	CQ	Spot, 6" depth x 12' top, as marked
1.136	Pit Run Aggregate	30122	10	CY	CQ	Spot, 6" depth x 12' top, as marked
1.256	End Reconditioning of Roadbed					
	End Project					Road 2242 continues up around switchback right, gated. 2242A left, spur ahead.

Project Nickleplate
#
Contractor
Road # 1362 & 2516 **Miles** 0.82 & 2.93

Mile Post	Station	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000		Begin Project Road 1362					Jct w/Rd 308 @ MP 2.3
		Begin Reconditioning of Roadbed	30322	0.82	MI	CQ	
		Begin CaCl Flake @77% min, pellet @94% min, Prep Mthd 1	30605	5.8	TON	AQ	16' width, 1.5#/SY
0.820		End Reconditioning of Roadbed					
		End CaCl Flake					
		End Project Rd 1362					Jct w/Rd 2516, 1362 continues
0.000		Begin Project Rd 2516					Jct w/Rd 1362 @ MP 0.82
		Begin Reconditioning of Roadbed	30322	2.93	MI	CQ	
	15+95	Dumped riprap Class III	25101C	10	CY	CQ	
2.727	50+00						
2.930		End Project					

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Forest
Idaho Panhandle National Forests
Project Name
Nickelplate

Sheet Title
Project Work Descriptions
Rds 308, 1362 & 2516, 2242
Sheet 4 of 13

Project Nickleplate
#
Contractor
Road # 2231 **Miles** 0.83

Mile Post	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project					Jct w/County Road 200, Reeder Creek, @ MP 1.981
	Begin Reconditioning of Roadbed	30322	0.83	MI	CQ	Maintain all grade dips. Repair as noted. Incidental.
0.124	Begin Pit Run Aggregate (source 1)	30122	60	CY	CQ	6" depth x 14' top width, from 25' back to 25' ahead of MP 0.153, as marked
	Removal of Culvert	20301	1	EA	AQ	
	Install 18" CMP (incl culv excav), Steel Pipe 0.064 inch Thickness, Method C	60211A	26	LF	AQ	As staked
	Drainage Excavation, Type Catch Basin	20420	1	EA	AQ	
	Seeding	62527	0.01	Acre	CQ	All disturbed areas
0.153	End Pit Run Aggregate					25' ahead, as marked
	Construct Outlet Ditches	20419A	140	LF	AQ	Cut 20' outlet ditches every 100', as marked up to MP 0.309
0.334	Construct Grade Dip	20426	1	EA	AQ	50' back, as marked. Includes 10 CY Class I riprap, 4"-6" size, in bottom and on fill
0.376	Begin Pit Run Aggregate (source 1)	30122	90	CY	CQ	6" depth x 12' top width, to MP 0.444, as marked
0.444	End Pit Run Aggregate					
0.660	Begin Pit Run Aggregate (source 1)	30122	40	CY	CQ	6" depth x 12' top width, to MP 0.679, as marked
0.679	Individual Removal of Stumps	20206	1	EA	AQ	In left shoulder
	End Pit Run Aggregate					
0.749	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	108	CY	CQ	6" depth x 12' top to MP 0.80, as marked
0.800	End Crushed Aggregate					
0.830	End Reconditioning of Roadbed					Existing gate.
	End Project					Road 2231 continues ahead down ridge to left. Jct w/Road 2231A Station 0+00

Project Nickleplate
#
Contractor
Road # 2231A **Miles** 0.66

Station	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0+00	Begin Project					Jct w/Road 2231 @ MP 0.83. Gate - Location of Source 1 to the Right as Marked on the ground
	Begin Reconditioning of Roadbed	30322	0.66	MI	CQ	Maintain all grade dips. Repair as noted. Incidental.
3+60	Construct Ditch	20419B	365	LF	AQ	Recut ditch on left
	Begin Pit Run Aggregate (source 1)	30122	150	CY	CQ	6" depth x 12' top width, to 9+65, as marked
10+60	Construct Ditch	20419B	170	LF	AQ	Recut ditch on left to 12+00
14+00	Drivable Water Bar	20419C	200	LF	AQ	Start here on right and skew back down to 12+00. Tie into ditch on left
14+90	Pit Run Aggregate (source 1)	30122	10	CY	CQ	Spot, 6" depth x 12' top width, to 15+25, as marked
16+70	Removal of Culvert	20301	1	EA	AQ	Remove existing 18" culvert in live stream.
	Install 24" CMP (incl culv excav), Steep Pipe .075 inch Thickness, Method C	60211B	34	LF	AQ	As staked
	Machine Placed Riprap, Class V	25101B	10	CY	CQ	Place on fill around inlet up to high water and at outlet, as marked
	Seeding	62527	0.01	Acre	CQ	All disturbed areas
17+60	Install 18" CMP (incl culv excav), Steel Pipe 0.064 inch Thickness, Method C	60211A	36	LF	AQ	As marked
	Drainage Excavation, Type Catch Basin	20420	1	EA	AQ	
	Construct Ditch	20419B	245	LF	AQ	Construct ditch up to 20+25
	Seeding	62527	0.03	Acre	CQ	All disturbed areas
19+40	Machine Placed Riprap, Class V	25101B	200	CY	CQ	Place Riprap on Fill Slope to Repair Slide
	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	9	CY	CQ	See Sheet 9 of 13 for Slide Details
20+25	Removal of Culvert	20301	1	EA	AQ	
	Install 18" CMP (incl culv excav), Steel Pipe 0.064 inch Thickness, Method C	60211A	36	LF	AQ	As marked
	Seeding	62527	0.01	Acre	CQ	All disturbed areas
20+72	Machine Placed Riprap, Class I	25101A	10	CY	CQ	Place in bottom of existing water bar and on fill slope at outlet, as marked
22+05	Machine Placed Riprap, Class I	25101A	10	CY	CQ	Place in bottom of existing water bar and on fill slope at outlet, as marked
23+42	Machine Placed Riprap, Class I	25101A	10	CY	CQ	Place in bottom of existing water bar and on fill slope at outlet, as marked
34+05	Construct Grade Dip	20426	1	EA	AQ	Includes 10 CY Class 1 riprap, 4"-6" size, in bottom and on fill
34+80	End Reconditioning of Roadbed					
	End Project					Road 2231A continues ahead to the left. Jct w/2231C ahead right.

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Forest
Idaho Panhandle National Forests
Project Name
Nickelplate

Sheet Title
Project Work Descriptions
Rds 2231, 2231A
Sheet 5 of 13

Project Nickleplate
#
Contractor
Road # 2242A Seg I **Miles** 0.31

Mile Post	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project					Jct w/Road 2242 @ MP 1.26
	Begin Linear Grading (composite road reconstruction)	21250	16.4	STA	CQ	Reconstruct approach onto road 2242 to the east. Reshape existing road to drain and provide a smooth running surface. Minimum clear width is 24', or as marked Minimum road width is 12'.
0.072	Construct outlet ditch	20419A	30	LF	AQ	As marked
0.179	Construct outlet ditch	20419A	20	LF	AQ	As marked
0.306	Construct truck turn around	212551	1	EA	AQ	See typical section
0.312	End Linear Grading					
	End Project					Road continues ahead down steep pitch and ties to Road 2242A Seg II

Project Nickleplate
#
Contractor
Road # 2242A Seg II **Miles** 0.73

Mile Post	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project					Jct w/Road 2231 @ MP 0.083
	Begin Reconditioning of Roadbed	30322	0.73	MI	CQ	Maintain all grade dips. Repair as noted. Incidental.
0.035	Install 18" CMP (incl culv excav), Steel Pipe 0.064 inch Thickness, Method C	60211A	24	LF	AQ	As staked
	Select Borrow (source 1)	20407	40	CY	CQ	Use material to raise grade over new culvert , 14' finished width, as marked.
0.349	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	45	CY	CQ	6" depth x 12' top to MP 0.387, as marked
0.387	End Crushed Aggregate					
0.634	Begin Crushed Aggregate, Type surfacing, Grading F or G, Comp A (commercial source)	30111	9	CY	CQ	Spot, 6" depth x 12' top, as marked
0.720	Construct truck turn around	21250B	1	EA	AQ	See typical section
0.730	End Reconditioning of Roadbed					
	End Project					Road continues ahead up steep pitch and ties to Road 2242A Seg I

GENERAL NOTES:

1. Old Corduroy Logs and other woody debris brought to the surface during reconditioning of road 308 shall be disposed of by piling at the designated location in the gravel pit at mile post 0.42. Resulting holes shall be backfilled with suitable material and compacted.
2. Estimated quantity for Item 30605 is based on an application rate for CaCL Flake @ 77% minimum concentration of 1.5 pounds per square yard, at the width specified on the Line Diagrams. The cost of watering the surface prior to application is incidental.
   Substitution may be made as follows: Calcium Chloride Pellet, 94% minimum concentration application rate on 1.23 pounds per square yard. Construct roads to Tolerance Class E.
3. Watering as per section 170 is incidental to pay items under sections 301, 303, 306, and 625 if needed.
4. Section 204, 303, and 602, Excess, oversize or unsuitable material shall be sidecast uniformly over adjacent fill slopes, so it does not enter live streams.
5. ROCK SOURCES: Source 1 is an existing FS cut slope at the junction with roads 2231A and 2231 as shown on the drawings and designated on the ground.
   Source 2 is an existing FS Pit on road 1094, T59N R5W Sec7. Access is from SH 57 at MP 22.3, West on Road 312.
6. Pit Development and Rehab:
   a. The work for both pits is incidental to Pay Item 30311 and 30322.
   b. Clearing Limits shall be 3' from the new top of cut, as marked.
   c. Slash disposal: T&L - K, Stumps - K, Logs - i, UOT - as per Section 20106. Deck at area designated by the CO.
   d. Finished cut slope at 1:1 slope.
   e. Grade floor to match road.
   f. Match existing ditch to drain.
8. For Pay Items 21250A and 21250B
   a. Clearing and Grubbing as per 203.05
      - Slash Disposal Methods: T&L - K, Stumps - K, Logs - i, UOT - as per section 201.06
   b. Clearing Width:
      - 5' Past New Top of Cut, 5' Past shoulders or 24' minimum or as marked.
   c. Cut and Fill Slopes
      - Cut 1:1, Fill 1⅓:1
   d. Finished Subgrade width
      - 14' or as shown on the drawings
   e. Finsihed subgrade: Shape to drain and have a smooth horizontal & vertical alignment by Ripping and Scarifying to remove protruding rocks, holes, sags & humps.
9. Construction Tolerance Class is E as per table 204-2.

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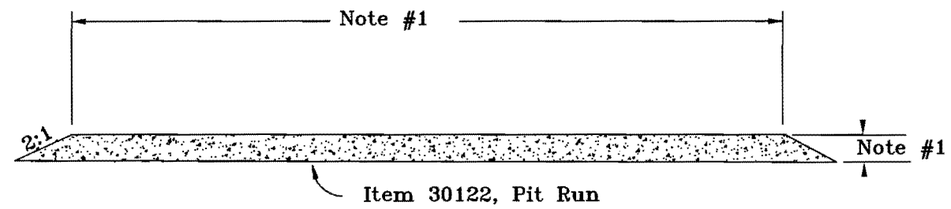
Forest
Idaho Panhandle National Forests
Project Name
Nickelplate

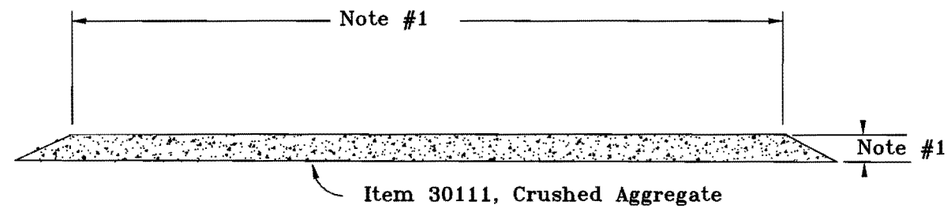
Sheet Title
Project Work Descriptions
Rds 2242A Seg I, 2242A Seg II, Gen Notes
Sheet 6 of 13

NOTES:

1. Compacted depth and finished top width as shown in the Project Work Descriptions.
2. Section 301 Aggregate Surface Course shall come from a Commercial Source for designated roads. The cost of watering is incidental to Item 30111.
3. Section 303 – Scarification is not required.
4. Pay Item 30322 – Ditch sections adjacent to crushed aggregate surfaces shall becleaned in a manner that does not contaminate the aggregate surface, excess and unsuitable material shall be sidecast uniformly along adjacent fill slopes. A 50' transition shall be made at each traveled intersection.
5. For Item 20419A
   a. Ditch Centerline at outlet will be marked.
   b. Ditch Depth varies to allow free drainage and to daylight at the outlet.
   c. Clearing is incidental. Slash shall be scattered.
   d. Place excavated material away from ditch. Smooth and shape piles to allow free drainage.
6. Maintain all existing Grade Dips, incidental to 30322.
7. Clean all Ditches, Catch Basins & the Inlets & Outlets of culverts to the typical dimensions, incidental to 330322.

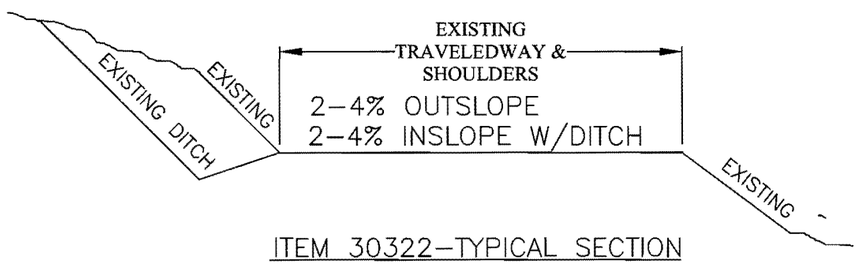


Pit Run Typical Section



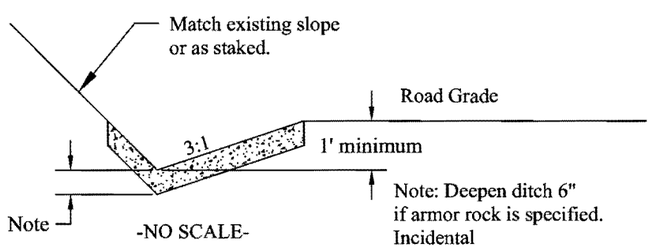
Crushed Aggregate Typical Section

(not to scale)

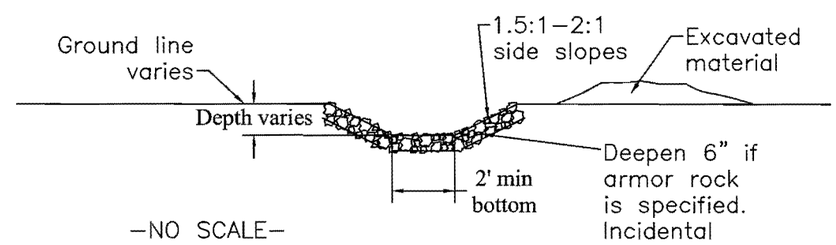


ITEM 30322–TYPICAL SECTION

–NO SCALE–



DITCH TYPICAL SECTION



Outlet Ditch Typical

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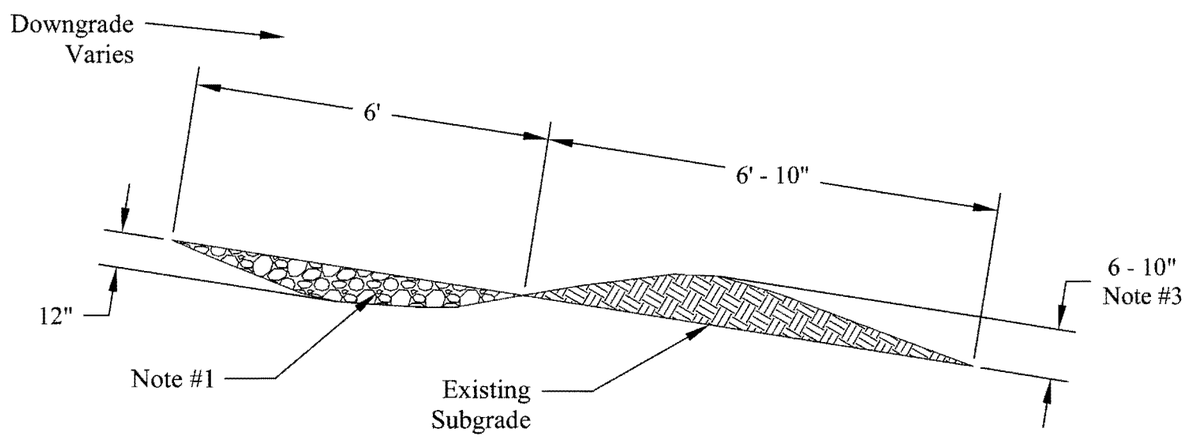
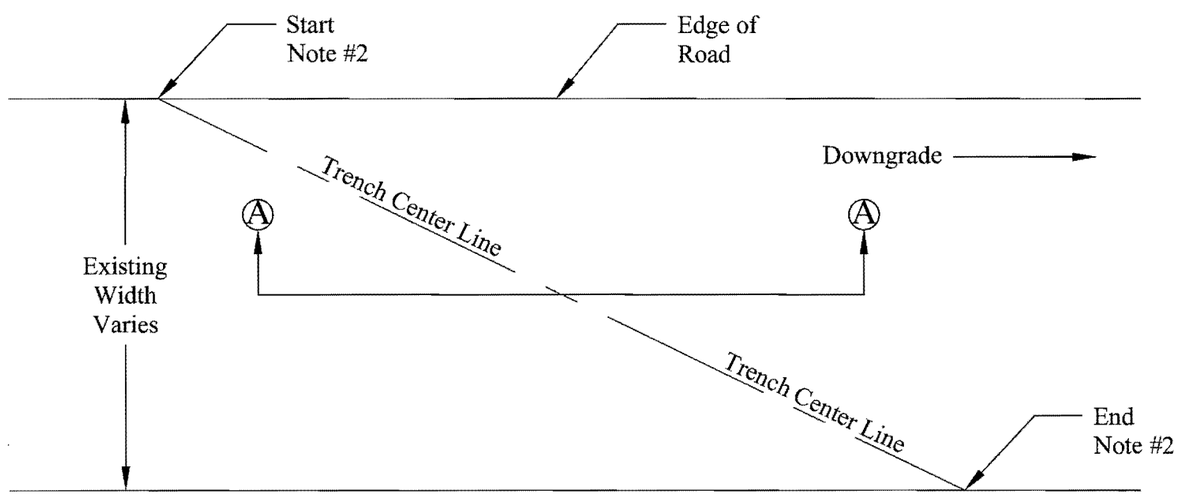
Sheet Title
Typical Sections

Sheet 7 of 13



DRIVABLE WATER BAR - Sec. A-A

Not to Scale

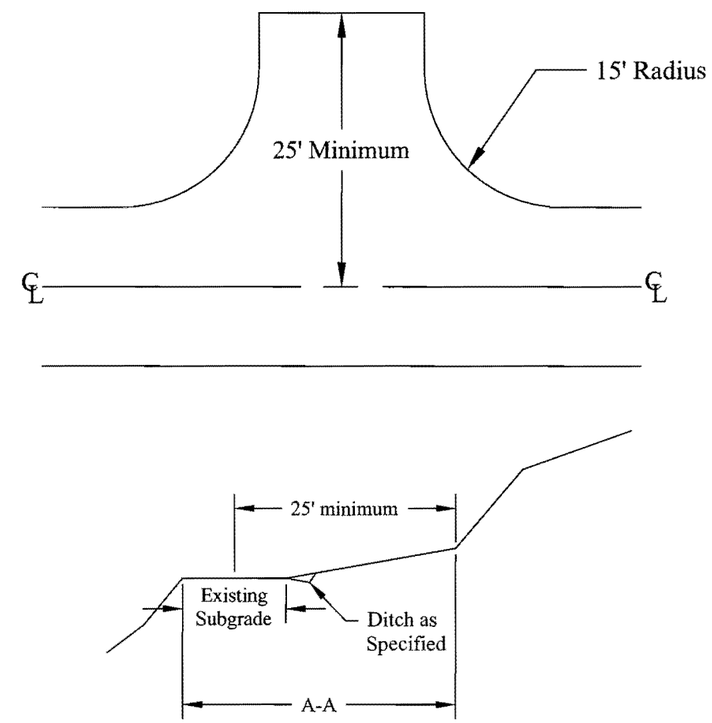


DRIVABLE WATER BAR - PLAN VIEW

Item 20419C

Drivable Water Bar Notes:

1. Fill Excavation Trench with clean class I rip rap to intercept overland flow and act as a draing to channel the water downgrade to the desired outlet. This is incidental.Quantity of rip rap will be based on a design volume of 0.1 CY per LF, and is included in item 20419C. Riprap shall come from Source 1.
2. The length of item 20419C to be paid will be the length from the marked start point to the marked end point along the bottom of the excavated trench.
3. Utilize the material excavated from the trench to construct a compacted mound on the downgrade side.



TRUCK TURN AROUND

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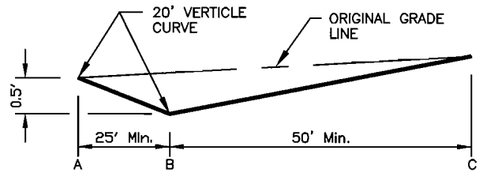
Project Name
Nickelplate

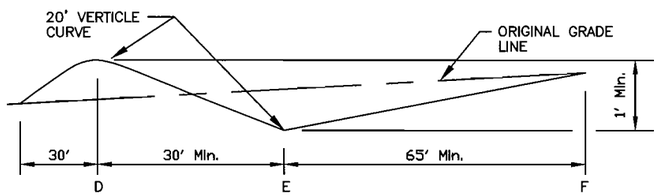
Sheet Title
Details

Sheet 8 of 13



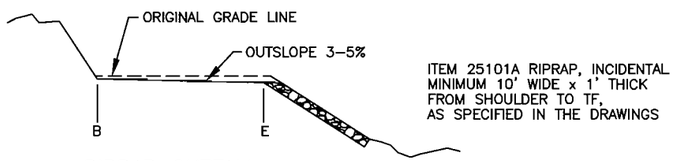
ROAD PROFILE ALONG A–B–C OF DRAIN DIP

DIP WILL MATCH BOTTOM OF DITCH IN DITCH SECTIONS, OR AS MARKED.
SEE NOTE 8



ROAD PROFILE ALONG D–E–F OF DRAIN DIP

DIP WILL MATCH THE ORIGINAL GRADE LINE IN DITCH SECTIONS, OR AS MARKED.
SEE NOTE 8



RIPRAP OUTFALL

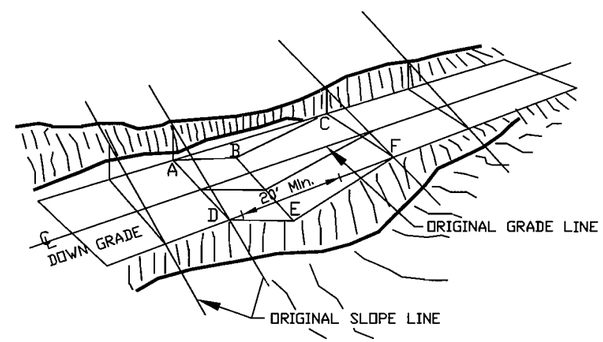
FILL SLOPE: 1.25:1, OR AS MARKED.

GRADE DIP NOTES:

1. GRADE DIP SHALL DISCHARGE ONTO NATURAL GROUND.
2. INSLOPE/OUTSLOPE OF DRAINAGE DIP WILL BE 3–5%.
3. SKEW LINE B–E TO FIT LOW POINT IN DRAW, IF LOCATED IN NATURAL DRAIN, OR AS MARKED.
4. EXCAVATION BELOW THE EXISTING GRADE LINE WILL BE USED AS EMBANKMENT ABOVE THE EXISTING GRADE LINE ON THE DOWN SIDE OF THE DRAINAGE DIP.
5. THE MAXIMUM DEPTH OF EXCAVATION AND EMBANKMENT WILL VARY WITH THE PERCENT OF GRADE.
6. COARSE ROCK FOR OUTFALLS SHALL CONFORM TO AND BE THE CLASS AS NOTED IN THE SCHEDULE OF ITEMS.
7. EXCAVATE 0.5' DEEPER THAN SHOWN IF ROCK IS SPECIFIED.
8. IN DITCH SECTIONS, DIP INSLOPE WILL START AT ORIGINAL ROAD GRADE AT FILL SHOULDER AND SLOPE DOWN GRADE INTO BOTTOM OF DITCH, OR AS MARKED.
9. FINAL LOCATION TO BE APPROVED BY THE ENGINEER.

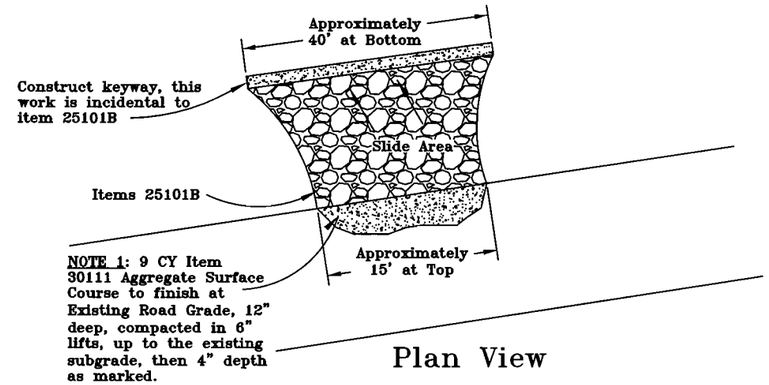
Grade Dip Details

Item 20426

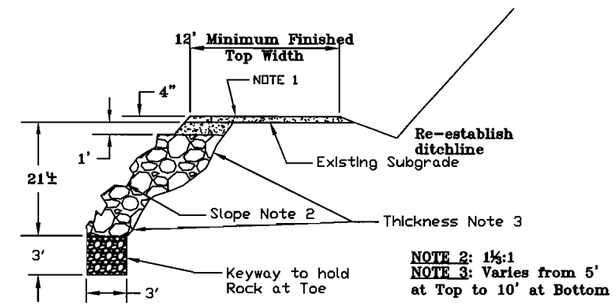


PERSPECTIVE VIEW

NON–DITCH SECTION



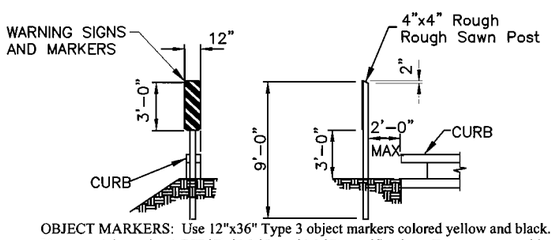
Plan View



Cross Section

Slide Details

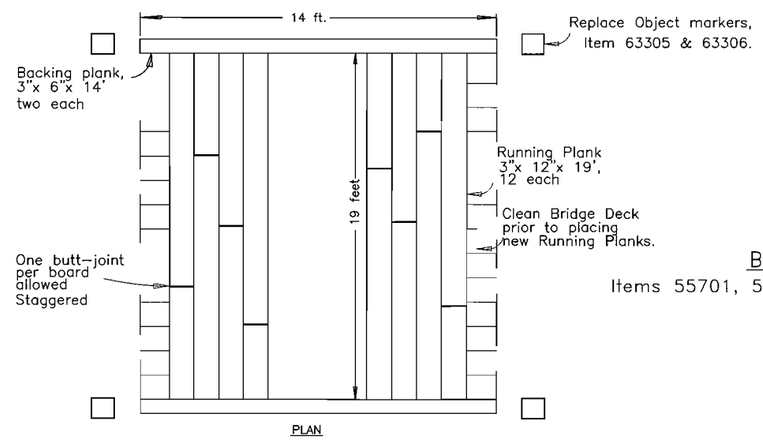
Road 2231A Sta. 19+40



OBJECT MARKERS: Use 12"x36" Type 3 object markers colored yellow and black. Use material meeting MUTCD OM-3L or OM-3R specifications. Fasten to post with (2) ¼" Ø machine bolts with washers. Field drill bolts holes. Install posts such that the inside edge of the reflectorized panel is on line with the inside edge of the curb.

OBJECT MARKER TYPE 3 TYPICAL INSTALLATION

NOT TO SCALE

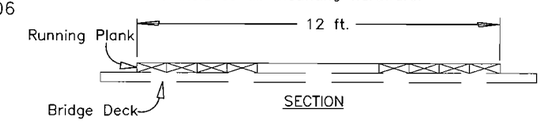


Bridge Details

Items 55701, 55703, 60712, 63305, 63306

BRIDGE NOTES:

1. Remove existing running plank and pile at an agreed to location for later burning. Incidental to Item 55701
2. Item 55701 Lumber shall be untreated, Douglas Fir or Larch, No. 2 ar better.
3. Nail running plank to bridge deck with 10" ring–shank nails or other approved by the Contracting Officer. Space nails on 2 ft. centers, 2" from edge on both sides, and two more at every butt joint.
4. Locate Object Markers in same place as existing. Posts shall be 4" x 4".
5. Replace Guardrail with same Nominal Dimension Lumber. Construct new Guardrail same as existing Guardrail.
6. Work above includes all mounting hardware.



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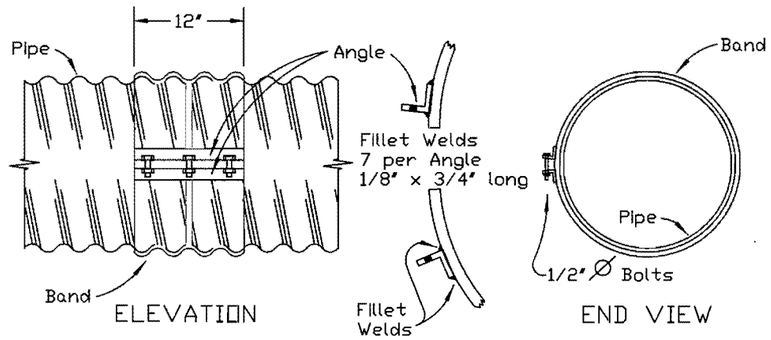
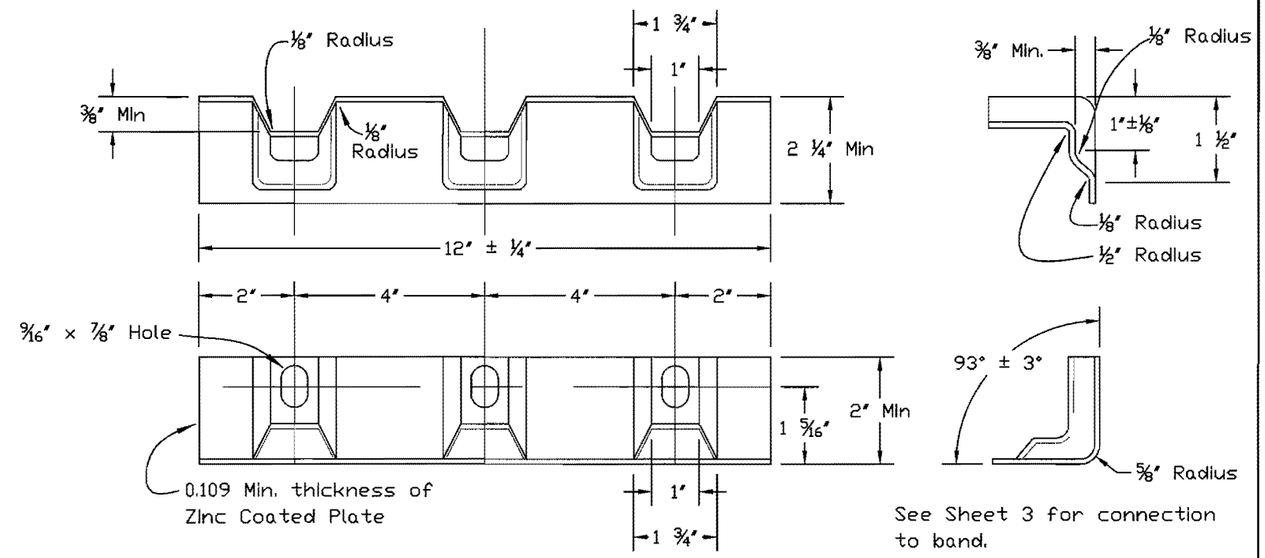
Sheet Title: Details Cont.

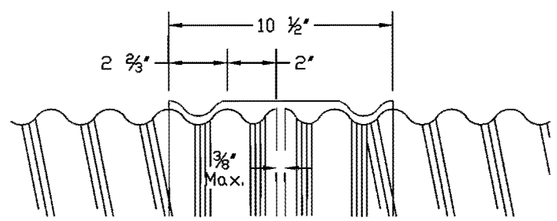
Sheet 9 of 13



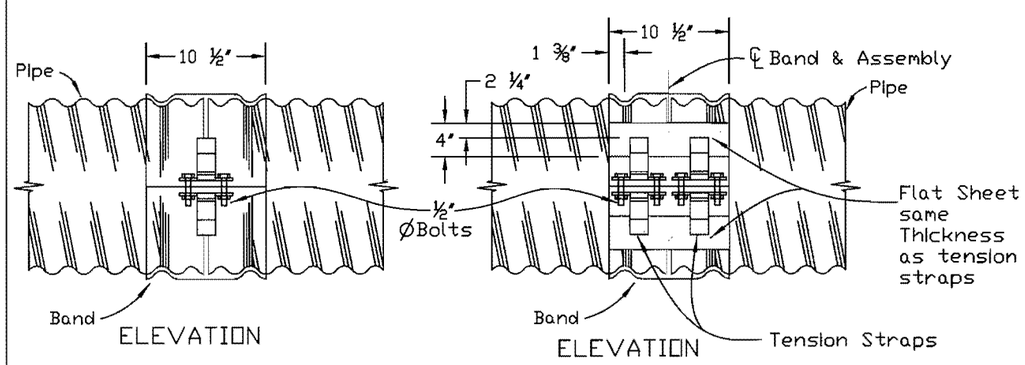
AMERICAN CULVERT BAND
FOR HELICALLY CORRUGATED STEEL PIPE



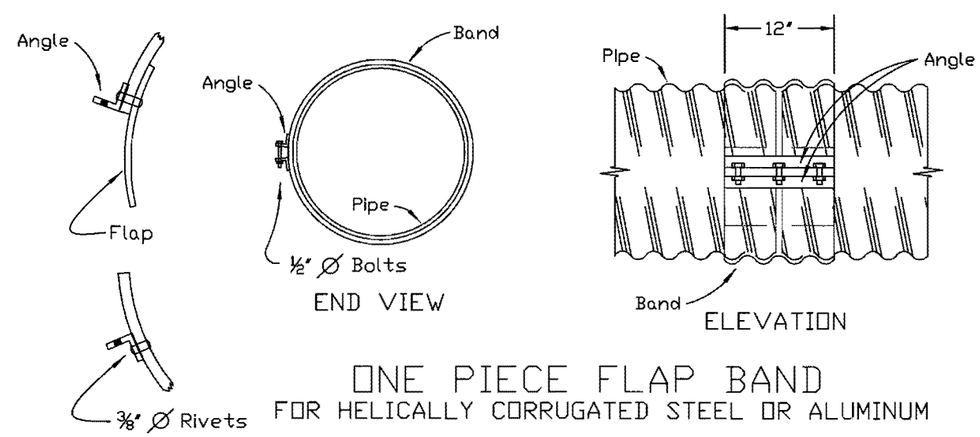
NORTHWEST CULVERT ANGLE ALTERNATIVE
FOR STEEL PIPE



SECTION



HUGGER COUPLING BAND
FOR REFORMED END HELICALLY CORRUGATED
WELDED SEAM STEEL PIPE



ONE PIECE FLAP BAND
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM

COUPLING BAND DETAILS
FOR
CORRUGATED PIPE AND PIPE ARCH

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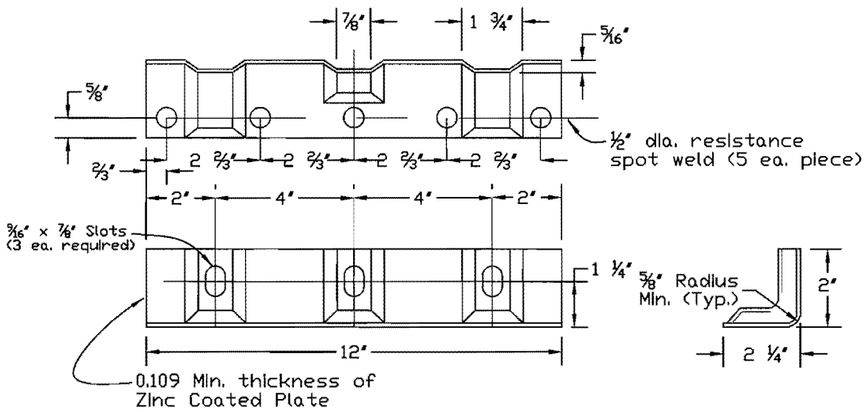
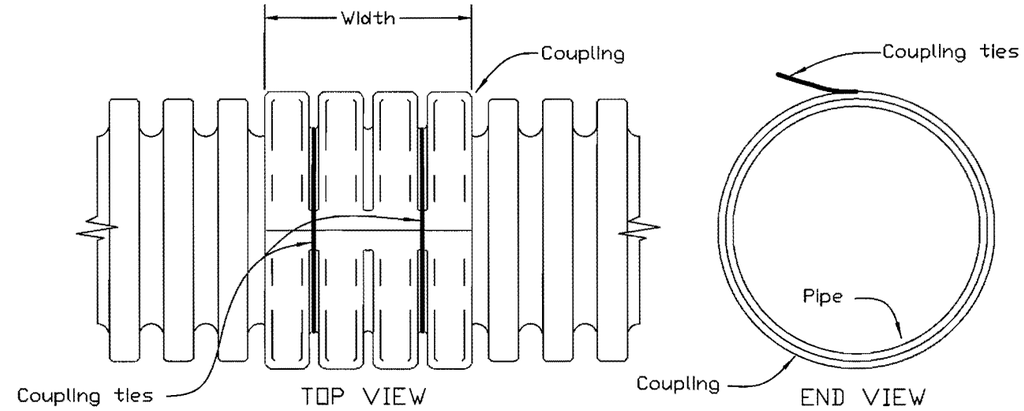
Project Name: Nickelplate

Sheet Title: Coupling Band Details For Corrugated Pipe and Pipe Arch
Sheet 10 of 13

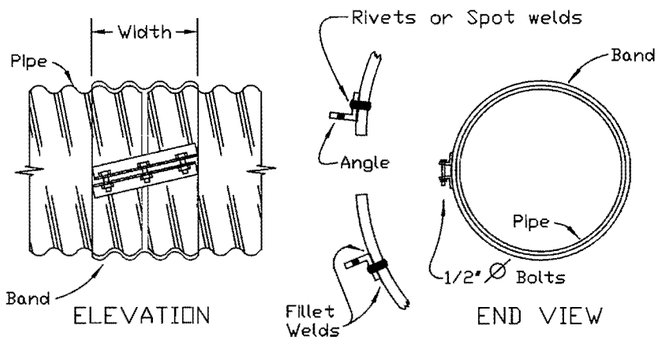


ALTERNATE FOR 2X2X3/16 ANGLE
FOR STEEL PIPE

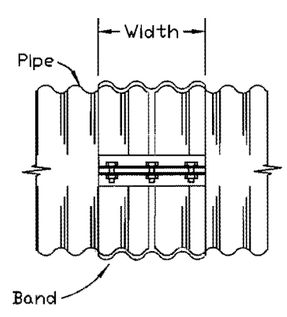


SPLIT COLLAR COUPLING
FOR ANNULAR CORRUGATED POLYETHYLENE PIPE

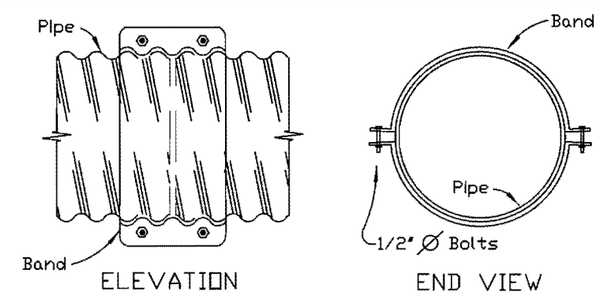
Notes:
1. Minimum width 4 corrugations, 2 on each culvert segment.
2. The opening of the coupling shall be within 15° of the top of the culvert.



HELICAL COUPLING BAND
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE



ANNULAR COUPLING BAND
FOR ANNULAR OR REFORMED END HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE



TWO PIECE INTEGRAL FLANGE
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE

Notes:
1 Use 2x12x0.150 thickness 5052-H141 aluminum plate washer under bolt head & nut on aluminum pipe flange.
2. Use 2x12x0.125 thickness galvanized steel plate washer under bolt head & nut on steel pipe flange.

COUPLING BAND DETAILS FOR CORRUGATED PIPE AND PIPE ARCH

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Project Name: Nickelplate

Sheet Title: Coupling Band Details For Corrugated Pipe and Pipe Arch
Sheet 11 of 13

COUPLING TYPE	CORRUGATION Inches	PIPE DIAMETER Inches	WIDTH Inches	SPECIFIED THICKNESS See Note 1-C: Pipe Wall	SPECIFIED THICKNESS See Note 1-C: Band	ANGLE - See Note 1-H: DIMENSION	ANGLE: BOLTS NO / DIAMETER	ANGLE TO BAND: RIVETS	ANGLE TO BAND: SPOT WELDS
Metal Pipe Annular and Helical	2-2/3x1/2 (Steel or Aluminum)	Thru 36	12	0.064-0.138	0.064-0.079	2x2x3/16	3-1/2	3-3/8	5-1/2
		42-60	12	0.064-0.079	0.064	2x2x3/16	3-1/2	3-3/8	5-1/2
		42-60	12	0.064-0.168	0.064-0.109	2x2x5/16	3-1/2	5-3/8	
		66-84	24	0.109-0.168	0.064-0.109	2x2x5/16	5-1/2	7-3/8	
	3x1 and 5x1 (Steel Only)	36-60	14	0.064-0.079	0.064	2x2x3/16	3-1/2	3-3/8	5-1/2
		42-60	14	0.109	0.064	2x2x5/16	3-1/2	5-3/8	
		66-120	25	0.064-0.109	0.064	2x2x5/16	5-1/2	9-3/8	
One Piece Flap Band & Two Piece Integral Flange	2-2/3x1/2 (Steel or Aluminum) see Note 1-I	18-24	12	0.064-0.079	0.064		3-1/2	4-3/8*	* Flap Band Only
								WELDS ANGLE TO BAND	
American Culvert Band	2-2/3x1/2 (Steel Only)	Thru 24	12	0.064-0.109	0.064-0.079	2x2x0.183	3-1/2	7-1/8x3/4 Long Fillet	
		30-36	12	0.064-0.109	0.064	2x2x0.183	3-1/2		
		42-48	12	0.064-0.079	0.064	2x2x0.183	3-1/2		
Northwest Culvert Alternative	2-2/3x1/2 (Steel Only)	Thru 84	12	0.064-0.079	0.064-0.109			5-3/16x3/4 Long Fillet	
		Thru 54	12	0.109	0.064-0.109				
		Thru 42	12	0.138	0.064-0.109				
		Thru 84	12	0.064-0.168	0.064-0.109			5-1/2 Spot	
						BAR AND STRAP: NUMBER/ THICKNESS	BOLT DIAMETER	BAR DIAMETER	BAR YIELD STRENGTH P.S.I.
Hugger	2-2/3x1/2 (Steel Only)	Thru 48	10-1/2	0.064-0.109	0.064-0.109	One 0.079	1/2	7/8	32,000
		36-48	10-1/2	0.138-0.168	0.079-0.109	One 0.109	1/2	7/8	45,000
		54-60	10-1/2	0.079-0.168	0.064-0.109	Two 0.079	1/2	7/8	32,000
		66-84	10-1/2	0.109-0.168	0.109	Two 0.109	1/2	7/8	45,000
	3x1 (Steel Only)	36-66	10-1/2	0.064-0.109	0.064	Two 0.079	1/2	7/8	32,000
		72-84	10-1/2	0.109	0.079	Two 0.079	1/2	7/8	32,000
		61-120	10-1/2	0.109	0.109	Two 0.109	1/2	7/8	45,000
PE Pipe Split Collar		Thru 24	See Drawing	per AASHTO M-294	per AASHTO M-294				

GENERAL NOTES

1. Metal Coupling Bands
   - A. These coupling bands meet the strength requirements for special Joint Types under Non-erodible Soil Conditions, Table 2.23.3 of AASHTO's "Standard Specifications for Highway Bridges".
   - B. For pipe walls and bands, the Specified Thickness for steel is given. For aluminum, the Specified Thickness is that for steel less the allowance for the zinc coating which is 0.003 to 0.004 of an inch per AASHTO M-36, M-196 and M-197.
   - C. The minimum specified Thickness for bands is two Specified Thicknesses less than that for the pipe, but in no case thinner than 0.064 inches, (0.060 for aluminum).
   - D. For pipe arches, use the same width band as for round pipe of equal periphery.
   - E. A two-piece band is required for pipe greater than 42 inches in diameter.
   - F. Tension straps may be connected to bands of plates with either spot or fillet welds that develop minimum required strength of strap.
   - G. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
   - H. Use 1 1/4 inch center to center gauge line dimension on attached angle leg for rivets and spot welds.
   - I. The Two Piece Integral Flange coupling band shall not be used on pipe arches.
   - J. Culvert bands shall be made of the same metal as the culverts being joined.
2. Polyethylene (PE) Couplings

   Testing standards for Corrugated Polyethylene (PE) Pipe couplings have not been established nor have couplings been tested for shear or bending moment. Therefore, until further information is available, PE couplings shall be used only where bending moment and shear requirements are minimal. Typical situations are:
   - A. Where the slope of the culvert will not be more than 5%.
   - B. Where the fill below the culvert is less than 2 feet.
   - C. In areas of firm soils. This excludes marshes unless the bedding is specially designed and approved by the engineer.
3. Other

   Couplings other than those shown on this drawing may be used upon submission of testing data (see 1-A above) and approval by the Engineer.

COUPLING BAND DETAILS FOR CORRUGATED PIPE AND PIPE ARCH

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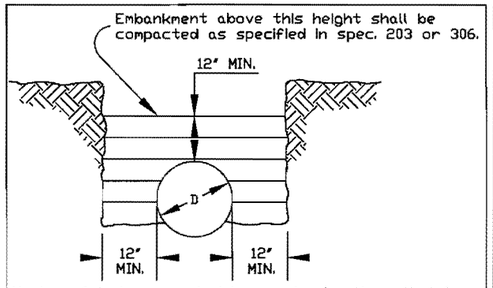
Project Name: Nickelplate

Sheet Title: Coupling Band Details For Corrugated Pipe and Pipe Arch
Sheet 12 of 13



Maximum 6-inch compacted layers to density called for in the specifications. Bedding shall be suitable material uniformly compacted and shaped to fit the bottom of the pipe.

METAL THICKNESS AND GAGE TABLES			
Steel		Aluminum	Approx. Gage
Zinc Coated	Un-Coated		
Metal Thickness in Inches			
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8
0.188	0.1838		7
0.218	0.2145		5
0.249	0.2451		3
0.280	0.2758		1

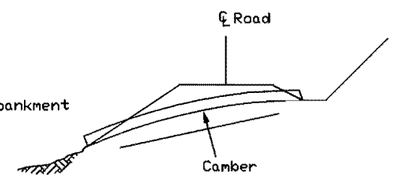
GENERAL NOTES:

TREATMENT OF DAMAGED SPELTER: The damaged or corroded ends of metal pipe to be extended shall be removed. If the damaged end is flame cut, the burned spelter on the galvanized pipe shall be wire brushed to clean metal and the area shall be painted with two coats of paint, high in zinc content, for repair of the galvanized surfaces.

SETTLEMENT AND CAMBER: Pipes shall be cambered as necessary to compensate for any anticipated settlement in the foundation or bed. Camber shall be on a parabolic curve with no point along the invert being higher than the invert at the inlet.

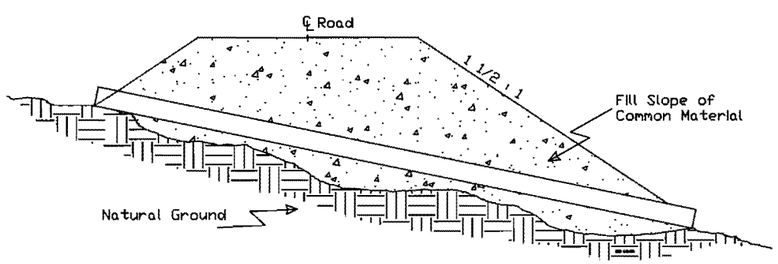
EMBANKMENT AND FOUNDATION SOIL CONDITION
Existing Fills, Regardless of Foundation Soils

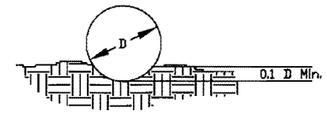
CAMBER
1% of pipe length, not to exceed 3/4 of pipe span.



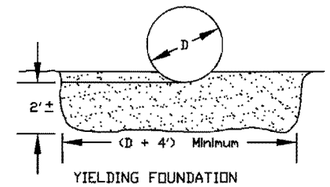
1% of pipe length, not to exceed 3/4 of pipe span or as determined by the engineer.

TYPICAL INSTALLATION IN EMBANKMENT

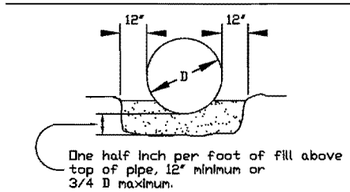




TYPICAL BEDDING MATERIAL

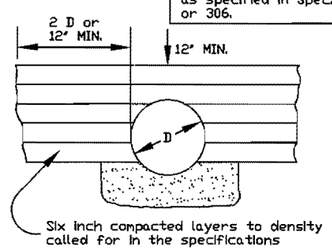


YIELDING FOUNDATION



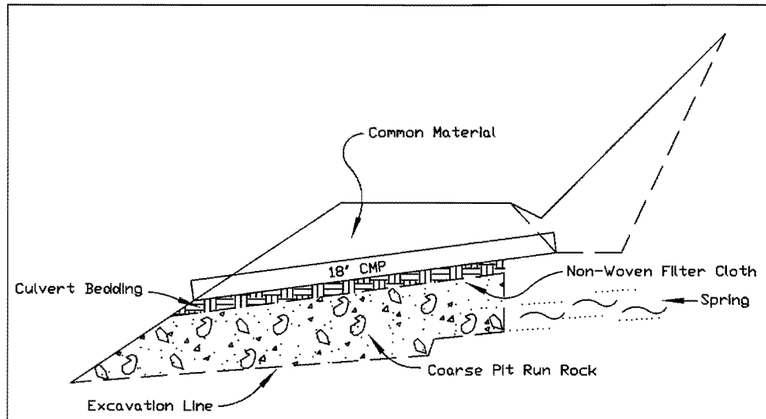
ROCK FOUNDATION

Embankment above this height shall be compacted as specified in Spec. 203 or 306.

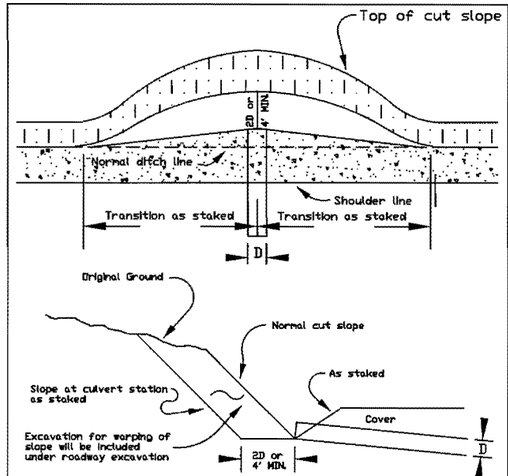


TYPICAL BACKFILL DETAIL

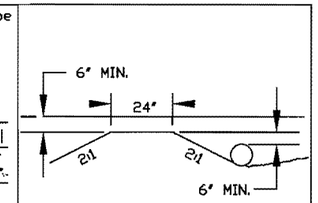
Bedding shall be suitable material uniformly compacted and shaped to fit the bottom of the pipe



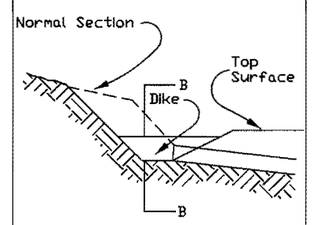
UNDERDRAIN TYPICAL SECTION



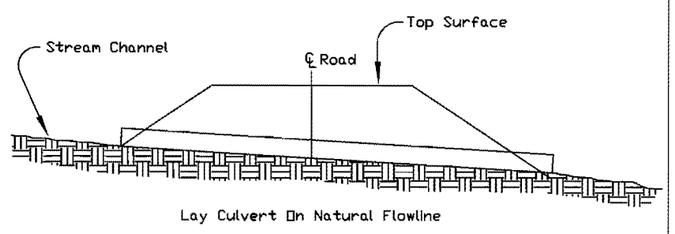
TREATMENT OF CUT SLOPE AT CULVERT INLET



SECTION B-B



DITCH DIKE



Lay Culvert On Natural Flowline

TYPICAL INSTALLATION IN STREAM CHANNEL

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-1
NORTHERN REGION

NOT TO SCALE

Drawn: Josh Nelson
Design:
Checked:
Reviewed:

Forest: Idaho Panhandle National Forests
Project Name: Nickelplate

Sheet Title: Culvert Installation Details

Sheet 13 of 13