# ESTIMATE OF QUANTITIES



| ITEM NO. | DESCRIPTION | METHOD OF MEASURE | UNIT | REVISION DATE | QUANTITIES | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROAD NUMBER | 272 | 2228 | 2481 | 2587 | - | - | |
| | | | | MILE POST (MILES) | 3.25 | 1.4 | 11.1 | 1.95 | - | - | |
| 201A(01) | Roadway Brushing | D.Q. | Mile | 2 | | 1.40 | 1.60 | 1.95 | | | |
| 203(19) | Drainage Excavation, Type Outlet Ditch | D.Q. | L.F. | 1 | 150.00 | | | 50.00 | | | |
| 203(20)1 | Drainage Excavation, Type Rolling Dip | A.Q. | Each | 1 | | 1.00 | | | | | |
| 203(20)2 | Drainage Excavation, Type Rock Ford | A.Q. | Each | 1 | | | | 1.00 | | | |
| 304(16) | Placing Aggregate, Compaction B | D.Q. | C.Y. | 2 | 50.00 | 255.00 | 1,090.00 | 40.00 | | | |
| 306(01) | Reconditioning of Roadbed, Compaction A | A.Q. | Mile | 2 | | 1.40 | 11.10 | 1.95 | | | |
| 412(16) | Calcium Chloride Flake @77% Min. Concentration Preparation Method 1 | A.Q. | Ton | 2 | | - | 78.00 | - | | | |
| 601(01) | Mobilization | L.S.Q. | L.S. | 2 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| 603(01)18C | 18" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.060, Method C | A.Q. | L.F. | 3 | 36.00 | 60.00 | 62.00 | 78.00 | | | |
| 603(01)36C | 36" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.075, Method C | A.Q. | L.F. | 3 | 40.00 | | | | | | |

**FOREST SERVICE SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES**

SPECIFICATION LIST

| Project Name Northern Prairie | | Road Number. . . . . | 272 | 2228 | 2481 | 2587 | | | Latest |
|---|---|---|---|---|---|---|---|---|---|
| | | Road Name . . . . . | Hall Mountain | Miller Creek | Mission Mountain | Ross | | | Revision |
| Date Prepared | April 11, 2008 | Termini . . . . . | 0.0-3.25 | 0.00-1.40 | 0.00-11.1 | 0.00-1.95 | | | Date |
| Spec. No. | Title | | R | R | R | R | | | |
| 101-106 | General Specifications | | X | X | X | X | | | 4/85 |
| SPS-101 | Abbreviations | | X | X | X | X | | | 04/11/08 |
| SPS-104 | Maintenance for Traffic | | X | X | X | X | | | 04/11/08 |
| SPS-106 | Measurement and Payment | | X | X | X | X | | | 04/11/08 |
| SPS-201A | Roadside Brushing | | | X | X | X | | | 04/11/08 |
| 203 | Excavation | | X | X | | X | | | 4/85 |
| 204 | Soil Erosion & Water Pollution Control | | X | X | X | X | | | 4/85 |
| SPS-204 | Soil Erosion & Water Pollution Control | | X | X | X | X | | | 04/11/08 |
| 206A | Excavation for Culverts and Minor Structures | | X | | | | | | 4/85 |
| SPS-206A | Excavation for Culverts and Minor Structures | | X | | | | | | 04/11/08 |
| 304 | Aggregate Base or Surface Course | | X | X | X | X | | | 4/85 |
| SPS-304 | Aggregate Base or Surface Course | | X | X | X | X | | | 04/11/08 |
| 306 | Reconditioning Existing Road | | | X | X | X | | | 4/85 |
| SPS-306 | Reconditioning Existing Road | | | X | X | X | | | 04/11/08 |
| SPS-412 | Dust Palliative Treatment | | | X | X | X | | | 1/95 |
| 601 | Mobilization | | X | X | X | X | | | 4/85 |
| SPS-601 | Mobilization | | X | X | X | X | | | 04/11/08 |
| 603 | Metal Pipe | | X | | X | | | | 4/85 |
| SPS-603 | Metal Pipe | | X | | X | | | | 04/11/08 |
| 720 | Geotextiles | | | | | X | | | 4/85 |
| SPS-720 | Geotextiles | | | | | X | | | 3/99 |
| | | | | | | | | | |
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| United States Department of Agriculture | Forest Service | Idaho Panhandle National Forests | Bonners Ferry Engineering Team |
|---|---|---|---|

REPLY TO: 7700
2450

Date: March 28, 2008

SUBJECT: Special Project Specifications

Northern Prairie Proposed Timber Sale

6 **DISTRICT**

TO: Forest Engineer

[X] **RO SALE** (Check one)
**SO SALE**
**DISTRICT SALE**

The following Special Project Specifications are recommended for use in the Timber Sale Contract for the above referenced sale.

Regional Numbers: 412, 720

Forest Numbers: 101, 106, 201A, 304, 306, 603

Revised Regional Numbers:

Revised Forest Numbers: 104, 204, 206A, 601

Unique Numbers:

Prepared by: N. Davis

Approval of the Forest and attached Revised and Unique SPS's is requested.

Forest Engineer

Enclosures

## Section 101 - Abbreviations

**101.02 Delete in its entirety and substitute the following:**

Pay Items &
Pay Units

"& ..... And
AC ..... Acre
AL ..... Aluminum
ASP ..... Asphalt
AVAIL ..... Available
BARR ..... Barrier
BKN ..... Broken
BST ..... Bituminous Surface Treatment
CATTLEGD ..... Cattleguard
CLEAR (CLG) ..... Clearing
CLEAR/GRUB ..... Clearing & Grubbing
CMP ..... Corrugated Metal Pipe
COMP ..... Compaction
CONC ..... Concrete
CONST ..... Construction (Construct)
CTD ..... Coated (Coating)
CUSH ..... Cushion
CY (CU YD) ..... Cubic Yard
CY MI (CYM) ..... Cubic Yard Mile
DIA ..... Diameter
DL ..... Double Lane
DWGS ..... Drawings
EA ..... Each
EMB ..... Embankment
EXC ..... Excavation
F&I ..... Furnish & Install
FDN ..... Foundation
FT ..... Foot (Feet)
FUNC ..... Function
GAL ..... Gallon
GR. ..... Grade
GRUB ..... Grubbing
HDPE ..... High Density Polyethylene
HOR ..... Horizontal
HR ..... Hour
HT ..... Height
I ..... Install
IN ..... Inches
INCL ..... Including (Includes)
IND ..... Individual
JCT ..... Junction
L ..... Logs
LBS ..... Pounds
LDG ..... Loading
LF (LIN FT ..... Linear (lineal) Foot
LS ..... Lump Sum
LT ..... Left
MAT'L ..... Material
M ..... Metal
MAX ..... Maximum
MBF ..... One Thousand Feet Board Measure
MGALS ..... One Thousand Gallons
MHD ..... Method
MI ..... Mile
MIN ..... Minimum
MISC ..... Miscellaneous
MP ..... Mile Post
MSF ..... One Thousand Square Feet
OTBC ..... Open Top Box Culvert
P M ..... Placement Method
PVC ..... Polyvinylchloride
RD ..... Road
RECOND ..... Reconditioning
RECONST ..... Reconstruction (Reconstruct)
REFL ..... Reflectorized
RT ..... Right
STMP (STP) ..... Stump(s)
SB ..... Self Balance
SEC ..... Section
SF ..... Square Foot (Feet)
SL ..... Single Lane
SLD ..... Solid
ST ..... Slash Treatment
STA ..... Station (100 Feet)
STA YD ..... Station Yard
STL ..... Steel
STR (STRUC) ..... Structural
SY (SQ YD) ..... Square Yard
SZ ..... Size
T&L ..... Tops & Limbs
TBR ..... Timber
TH ..... Thickness
TM ..... Ton Mile
TO ..... Turnout
TOL ..... Turnout Left
TOR ..... Turnout right
TRS ..... Trees
UOT ..... Utilization of timber
VERT ..... Vertical
W ..... Width
W/ ..... With
W/O ..... Without
X-SEC ..... Cross Section
YD ..... Yard

**Section 104 - Maintenance for Traffic**

104.01
Roads to be Constructed

Delete the first two paragraphs and replace with the following:

"All roads on this project shall remain open to traffic during construction work. Delays from culvert installations shall not exceed 4 hours and all roads shall be open week days from 6:00 pm to 6:00 am and from 6:00 pm Friday night to 6:00 am Monday on weekends.

Prior to the Contractor shutting down any operations, the Contractor shall take such precautions as may be necessary to prevent damage to the project, such as approaches, crossings or intersections; and shall make provisions for normal drainage and minimization of erosion.

CONSTRUCTION SIGNING

The contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient signs, and other traffic control devices and shall take necessary precautions for the protection of the work and safety of the public as SHOWN IN THE DRAWINGS.

PAYMENT

104.06
Basis

The following shall be added:

"Payment for construction signing and traffic control under this section shall be considered subsidary to Pay Item 601 - Mobilization and no separate payment will be made."

**Section 106 - Measurement & Payment**

~~1~~06.03
Units of Measurement

Under "(a) Cubic Yard, " add the following:

"(4) Material, Compacted in Place. The measurement computed using measurements of material in the compacted state on the project. Statistically random measurements of length, depth, and width for computation of quantities shall be made along the project when Actual Quantities are shown on the SCHEDULE OF ITEMS."

## SECTION 201A - ROADWAY BRUSHING

DESCRIPTION

201A.01 Work — This work shall consist of removing limbs, residual slash, live roadside brush, and small trees between, or obtruding into, the designated brushing limits. The brushing limits shall be AS SHOWN ON THE DRAWINGS. Brushing areas shall include turnouts.

CONSTRUCTION

201A.02 Clearing & Brushing — All brush and small trees (6 inches diameter, or less, at the point of cut) inside the brushing limits and outside the roadbed shall be cut off no higher than 4 inches above ground level (6 inches for machine brushing). Should rocks or other obstructions be encountered, the cutting height shall be no higher than 6 inches above the obstruction. Live trees with a diameter larger than 6 inches should be limbed to a height of 10 feet above the road surface. All brush and trees located on the roadbed shall be cut as nearly flush to the road surface as possible so stumps will not become a hazard to automobile tires.

201A.03 Windfalls — Windfalls lying within or across the brushing limits shall be limbed and cut off at a horizontal distance of 10 feet from each shoulder or at the brushing limit, which ever is least. Cut windfall material shall be disposed of as slash.

201A.04 — No brushing debris shall be deposited in the traveled way Road Junctions and/or ditches of adjoining roads.

201A.06 Slash Treatment — All slash shall be scattered outside the brushing limits without damaging residual trees. Slash shall be defined as any material cut that has a length greater than 36 inches or with a diameter greater than 3 inches at any point. No material shall be deposited in streams, streambeds, culvert inlets or outlets, or drainage ways.

MEASUREMENT

201A.07 Method — The method of measurement, described in Section 106, will be DESIGNATED in the SCHEDULE OF ITEMS.

Linear measurements will be horizontal along the road centerline.

Quantities will be the number of miles (or stations) and fractions thereof along the road centerline, regardless of the amount of work required.

PAYMENT

201A-08 Basis

The accepted quantities will be paid for at the contract unit price for each pay item shown in the SCHEDULE OF ITEMS.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 201A(01) | Roadway Brushing | Mile |
| 201A(02) | Roadway Brushing | Station |

## Section 204 - Soil Erosion & Water Pollution Control

DESCRIPTION

204.01
Work

Delete in entirety and substitute the following:

"This work consists of special temporary and/or permanent construction measures as SHOWN ON THE DRAWINGS and/or listed in this specification to control soil erosion and water pollution. Such measures may include (but are not limited to) filter windrows, slash blankets, brush barriers, drainage devices, earth berms, earthen water bars, sediment basins, aggregate base/surfacing, rock ditches, riprap, seeding, mulching, and/or straw bales.

MATERIALS

204.02
Requirements

Delete the 2nd paragraph and substitute the following:

"All other materials shall meet commercial grade standards and shall be approved before being incorporated into the project."

CONSTRUCTION

204.03
Performance

Delete the 2nd paragraph and substitute the following:

"Erosion control measures shall be incorporated into the project no later than the dates specified in Table 204.1. Variations in this schedule must be approved in writing by the Engineer."

Add the following after the 3rd paragraph:

"The following construction requirements shall apply:

a.- Earthwork. Clearing and grubbing, excavation, borrow and embankment operations shall be scheduled and performed so that grading operations and permanent erosion control measures can follow without interference or be constructed within the time periods listed in Table 204.1.

b.- Wet Conditions. The contractor shall conduct operations so as to minimize erosion and not develop conditions that will cause erosion. Work may continue during wet conditions as long as erosion and rutting is controlled.

c.- End of Construction Season and prior to Move-out. Any rutted areas and other damaged areas shall be smoothed, sloped and graded to drain. All temporary stream course diversion conduits and temporary culverts shall be removed and the stream returned to its natural channel. All erosion control measures required under this specification shall be functional and approved by the Engineer.

MEASUREMENT

204.04
Method

Add the following to the first paragraph:

"Items not shown in the SCHEDULE OF ITEMS will not be measured."

PAYMENT

204.05
Basis

Add the following:

"Other erosion control work required under this specification and not shown in the SCHEDULE OF ITEMS is considered incidental to pay items in the Section listed in Table 204.1."

TABLE 204.1

| SECTION | DURATION | DESCRIPTION OF WORK | TIMING OF CONSTRUCTION |
|---|---|---|---|
| 203 | Permanent | Culvert Catch Basins and Ditch Transitions | Concurrently with culvert installation. |
| Incidental to 201 203 304 603 or 625 | | Special Construction Methods. Specific locations and requirements shown on the drawings, and/or described in the Special Project Specifications. | As described on the drawings and/or in the Special Project Specifications. |
| Incidental to 203 | Temporary | Straw Bales/Straw Mulch. As necessary to stabilize eroding areas. | Immediately upon discovery of active erosion. |
| 304 | Permanent | Aggregate Base/Surfacing The total length of all areas of disturbed earth (including pioneer roads and completed subgrades) on which gravel has not been placed shall not exceed the length of the diturbed site and be placed concurrrently with the other work at the site.<br><br>This requirement may be waived by the Engineer based on a review of the Contractor's operations, methods, and progress in controlling erosion and keeping erosion control features current as described in this specification. Such waiver, if given, shall be in writing. | See description of work. |
| 412 | Permanent | Dust Palliative | The Forest Service will be notified 48 hours prior to application. |
| 603 | Permanent | Cross Drains | concurrently with road reconstruction |

**Section 206A - Excavation for Culverts & Minor Structures**

MEASUREMENT

206A.08 Methods

Add the following:

"(c) For gabion structures, measurement will be to the lines and grades as SHOWN ON THE DRAWINGS."

"(d) Excavation for pipe culverts with diameter of 36 inches or smaller and for pipe arches 42 inches by 29 inches or smaller and drop inlets shall not be measured."

PAYMENT

206A.09 Basis

After the first sentence, add:

"Payment for excavation for pipe culverts with diameter of 36 inches or smaller and for pipe arches 42 inches by 29 inches or smaller and drop inlets shall be included as a subsidiary item to Section 603 and Section 604. No separate payment shall be made under this Section or under Section 603, 603A, 603B, or 604."

**Section 304 - Aggregate Base or Surface Course**

CONSTRUCTION

| | |
|---|---|
| 304.12 Thickness Requirements | Add the following to this subsection:<br><br>"Compensation will not be made for thickness exceeding the specified thickness." |

**Section 306 - Reconditioning Existing Road**

DESCRIPTION

306.01 Delete "scarifying and" from the text.

Add: "and catch basins" following "outlets"

CONSTRUCTION

306.02 Performance Delete the first two paragraphs including (a) and (b) of the second paragraph and replace with the following:

"Scarification of the traveled way and shoulders is not required. Any rock protruding less than two inches may be left in place. Rock protruding in excess of two inches shall be removed or the tops blasted. Resulting holes in the roadway or shoulders shall be backfilled with compacted suitable native material."

**Section 412 - Dust Palliative Treatment**

Delete this entire specification and substitute the following:

DESCRIPTION
412.01
Work

This work shall consist of furnishing, sampling and applying dust palliative to a road surface. Road surface preparation requirements are DESIGNATED IN THE SCHEDULE OF ITEMS.

MATERIALS
412.02
Requirements

The type of material shall be as shown on the SCHEDULE OF ITEMS and shall meet the specified requirements shown below:

Magnesium or Calcium Chloride Brine

Chloride brines shall consist of water and magnesium and/or calcium chloride. The chemical composition, percent by weight brine, shall be as follows:

| | |
|---|---|
| Chloride Concentration (Sum of Magnesium & Calcium Chloride) | |
| Magnesium Chloride product | 28.0 % minimum |
| Calcium Chloride products | 36.0 % minimum |
| Sulfate | 4.3 % maximum |
| Nitrate | 5.0 % maximum |

(Test method R1-412/Cl must be used. It is available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, Montana 59807)

The pH shall be between 4.5 and 10.0. The temperature of the material shall be 40$^{o}$F or above when it is applied.

Calcium Chloride Flake

The chemical composition as shown below shall be determined by ASTM E 449-79 on a percent-by-weight basis:

| | |
|---|---|
| Calcium Chloride ($CaCl_2$) | 77% Minimum |
| Total Alkali Chlorides (as NaCl) | 3% Maximum |
| Calcium Hydroxide ($Ca(OH)_2$) | 0.3% Maximum |

Particle size shall be as follows: 100% pass the 3/8" screen, 80 to 100% pass the #4 screen, and 0 to 5% pass the #30 screen

## Lignin Sulfonate

Lignin Sulfonate shall be the residue produced by the acid-sulfite pulping of wood. base The cation shall be ammonium, calcium, or sodium. Lignin sulfonate shall be supplied as a uniform mixture and shall be miscible with an equal weight of water. The undiluted material shall conform to the following requirements:

| | |
|---|---|
| pH (AASHTO T200) | 4.5 minimum |
| Viscosity at 77 $^{o}$F (AASHTO T202) | 20.5 poise maximum |
| Total Lignin Solids Concentration | 48 Percent Minimum |

(Test method R1-412/LS must be used for Total Lignin Solids Concentration. It is available upon request from USDA Forest Service, Regional Materials Testing Laboratory, P.O. Box 7669, Missoula, Montana 59807)

The solids must meet the following requirements:

| | |
|---|---|
| Lignin Sulfonate | 50 percent minimum |
| Reducing Sugars | 25 percent maximum |

The temperature of the material during application shall be between 40 and 140$^{o}$F.

## Clarified Dust Oil DO-4

Clarified Dust Oil shall conform to the following requirements:

| | |
|---|---|
| Flash Point (AASHTO T48) | 200$^{o}$F min. |
| Kinematic Viscosity @ 100$^{o}$F (AASHTO T201 | 20-100 cSt |
| Water (AASHTO T55) | 0.2% maximum |
| Asphaltenes (ASTM D3279) | 0 - 5% |
| Saturates (R1-412/DO-4) | 10% minimum |
| Volume of Oil Distillate @ 550$^{o}$F (AASHTO T59) | 5% max. |
| Viscosity of Residue by Distillation at 100$^{o}$F (AASHTO T201) | 400 cSt max. |

Test Method R1-412/DO-4 is available from USDA Forest Service, Regional Materials Laboratory, P.O. Box 7669, Missoula, MT 59807

The material temperature during application shall be above 85$^{o}$F.

412.03
Certificate
& Sampling

(a) Certification with Shipments. When each load of dust palliative is delivered, the contractor shall furnish the Engineer with one copy of the Bill of Lading and a fully executed Certificate of Compliance containing the applicable information shown in Figure 412-1. A separate Certificate of Compliance will not be required if the standard Bill of Lading contains the applicable information required by the certificate.

(b) Sampling. Sampling of dust palliative may be required to validate certifications furnished by the contractor. When sampling is directed by the Government, the actual samples shall be obtained by the contractor. The Engineer will be given the opportunity to witness sampling. All liquid delivery equipment shall be constructed to permit sampling in conformance with AASHTO T40 test procedure.

CERTIFICATE OF COMPLIANCE

| | |
|---|---|
| Consignee ..... | Destination ..... |
| Transportation ID (Truck No., etc) ..... | Date ..... |
| Percent Concentration by Weight: | Magnesium Chloride: ..... % |
| Calcium Chloride : ..... % | Lignin Sulfonate: ..... % |
| Net Weight Total Shipment ..... | Net Gallons @ 60°F..... |
| Specific Gravity @ 60°F ..... | |
| This shipment of ..... identified above and covered by this Certificate of Compliance complies with Forest Service Specifications applicable to Contract Number _____. | |
| Producer ..... | Signed .....<br>(Producer's Representative) |

Figure 412 - 1. -- Sample Certificate of Compliance

CONSTRUCTION

412.04
Weater
Limitations

All dust abatement materials shall be applied only when the surface to be treated contains appropriate moisture to get adequate penetration and absorption of dust abatement materials. Application during a light rain is acceptable provided the material penetrates the road surface, and does not flow to low areas or off the road surface.

Chloride brines and Lignin materials shall be applied only when the temperature is 40$^{o}$F or higher and the ground is not frozen.

To accelerate the penetration and absorption of calcium chloride flake materials, the road surface may be dampened prior to or after the flake application.

Clarified Dust Oil shall be applied only when the road surface and atmospheric temperature is 50$^{o}$F or more and rising or above 60$^{o}$F and falling.

412.05
Equipment

The distribution equipment shall be so designed, equipped, maintained, and operated such that the dust abatement material may be applied uniformly on variable widths of surface. Application shall be at readily determined and controlled rates from 0.10 to 0.50 gallons per square yard with uniform pressure and application. The allowable variation from the specified application rate shall not exceed 10% of the specified rate for individual distributor loads, and 2% of the specified rate for the entire project.
For liquid products the following requirements shall apply: (1) The spray pattern from each nozzle on the spray bar shall be uniform across the spray bar; (2) Distribution equipment shall include accurate volume measuring devices or a calibrated tank, a thermometer for measuring temperatures of tank contents, and a hose and nozzle attachment for applying material to areas inaccessible to the spray bar.
Calcium Chloride Flake shall be spread with equipment that evenly distributes the material across the required road width. The weight of flake in distribution vehicles trucks shall be accurately determined prior to application. The relative weight of material placed shall be easily determined during application.

412.06
Preparation
of Road
Surface

One or more of the following preparation and application methods shall be followed as DESIGNATED IN THE SCHEDULE OF ITEMS.

Method 1. Apply the dust palliative directly to the previously prepared surface.

For Method 2 and 3 the road surface shall be processed by blading below the elevation of ravelling, washboarding, and pot holes. The top two inches of surfacing material shall have a moisture content greater than 5 percent. After processing, the surface shall be shaped by blading to the required cross section SHOWN ON THE DRAWINGS. The prepared surface shall be approved in writing by the Engineer prior to treatment.

Method 2. A layer of loose cushion material approximately 1 inch in depth shall be developed for the full width of traveled way and kept in as loose a condition as possible prior to applying dust palliative. After the dust palliative has penetrated and pickup of material will not occur, the surface shall be compacted as SHOWN ON THE DRAWINGS, or compacted over the full treated width with either roller(s) or loaded truck(s).

If the one-inch layer of cushion material becomes compacted by traffic prior to treatment, a one-inch thickness shall be cut from the surface and bladed into a berm on the shoulder. Just prior to applying the dust palliative, the material in the berm shall be bladed to a uniform depth across the full width of the previously watered surface. The loose material shall have a moisture content greater than 5 percent just prior to applying dust palliative. After application, compact as specified above.

Method 3. Approximately 1 inch of the surface material shall be bladed into a berm on the shoulder. The initial application shall then be made on the existing surface. As soon as practical, but no more than 1 hour after application, the material in the berm(s) shall be bladed to a uniform depth across the previously treated surface and watered, if necessary, to meet the 5 percent minimum moisture content. The second application shall then be applied. Compaction shall be performed as specified in Method 2.

412.07
Application
of Dust
Palliative

Dust palliative application rates and width of road surface to be covered shall be as SHOWN ON THE DRAWINGS. For liquid products the rate is expressed as gallons per square yard and for Calcium Chloride Flake, the rate is expressed in pounds per square yard. If the actual application rate is less than specified, the dust abatement material left over will be applied at locations and application rates designated by the Engineer. If the application rate used by the contractor is greater than specified and additional material is required to complete the project coverage, the additional material shall be furnished and applied at the Contractor's expense.

The Engineer may field test Chloride brines and Lignin materials prior to application to make sure that the products meet the minimum concentrations specified. Acceptance of the material will be based on the concentration shown on the manufacturer's certificate, or on results of laboratory quality assurance tests done by the Forest Service on samples taken from distribution or hauling vehicles.

Uniform distribution shall be obtained at all points. For liquid products the spray pattern from each nozzle on the spray bar shall be uniform across the spray bar. For flake products, the coverage will be uniform on the road surface. Overlapping or skipping between spread sections shall be corrected. Accidental spillage and areas with excess dust palliative that are hazardous to traffic shall be covered with additional road surfacing material at the contractor's expense. The surface of adjacent structures and trees shall be protected from spattering or marring. Dust palliative material shall be discharged only in approved areas, and shall not be allowed to flow into ditches or stream courses.

412.08
Maintenance
& Opening
Traffic

The treated road surface shall be open to traffic within two hours following treatment. Traffic control and the prevention of vehicle undercoating is the contractor's responsibility. If dust abatement material is picked up by vehicles, the contractor shall apply road surfacing blotter material, and if necessary apply more dust abatement material to repair the damage. No compensation will be made for blotter or the additional dust abatement material to correct these problems. Reductions in payment may be made where traffic control and repair of the treated surface are not adequate.

MEASUREMENT

412.09
Method

The method of measurement, as described in Section 106, will be DESIGNATED in the SCHEDULE OF ITEMS.

PAYMENT

412.10
Basis

The accepted quantities will be paid for at the contract unit price for the pay item shown in the SCHEDULE OF ITEMS, with the following exceptions:

If laboratory quality assurance tests indicate that the minimum Calcium or Magnesium Chloride concentrations applied to the road surface were not as specified in Section 412.02, the Forest Service may reduce payment by multiplying the pay factor as calculated below, times the contract unit price for Item 412(07), 412(08), 412(13), 412(14), Item 412(15) or Item 412(16), times the accepted quantity. No payment will be made for brine concentrations below 20 percent.

Magnesium Chloride Brine Pay Factor =

$$1.0 - \frac{(28\% - \text{Concentration Applied})}{(8\%)}$$

Calcium Chloride Brine Pay Factor =

$$1.0 - \frac{(36\% - \text{Concentration Applied})}{(16\%)}$$

If laboratory quality assurance tests indicate that the minimum Lignin concentrations were not as specified in Section 412.02, the Forest Service may reduce payment by multiplying the pay factor as calculated below times the contract unit price for Item 412(09) or Item 412(10), times the accepted quantity. No payment will be made for concentrations below 24 percent.

$$\text{Lignin Pay Factor} = 1.0 - \frac{(48\% - \%\ \text{Concentration Applied})}{(24\%)}$$

If laboratory quality assurance tests on Clarified Dust Oil indicate that the maximum limits for viscosities, or asphaltenes were exceeded, the Forest Service may reduce payment by multiplying the lowest pay factor as determined below,

times the contract unit price for Item 412(05) or Item 412(06), times the accepted quantity.

Original Kinematic Viscosity Pay Factor = 100/Original Viscosity Asphaltene Pay Factor = (5 percent)/(percent Asphaltenes) Residue Viscosity Pay Factor = 400/Residue Viscosity

When each hauling/distribution vehicle cannot be readily weighed to determine quantities, the actual weight of material in full vehicles shall be determined at the start of the project. Thereafter, the number of vehicle loads applied to the road surface can be used for quantity determination, provided each load is full, each load is completely emptied on the project, and material lost from the load is deducted. The Engineer may direct the additional check weighing of loaded and empty vehicles at any time.

| Pay Item | | Pay Unit |
|---|---|---|
| 412(05) Clarified Dust Oil DO-4 Preparation Method | _____ | TON |
| 412(06) Clarified Dust Oil DO-4 Preparation Method | _____ | GAL |
| 412(07) Magnesium Chloride Brine @ 28% minimum Concentration Preparation Method | _____ | TON |
| 412(08) Magnesium Chloride Brine @ 28% minimum Concentration Preparation Method | _____ | GAL |
| 412(09) Lignin Sulfonate Solution @ 48% minimum Concentration Preparation Method | _____ | TON |
| 412(10) Lignin Sulfonate Solution @ 48% minimum Concentration Preparation Method | _____ | GAL |
| 412(13) Calcium Chloride Brine @ 36% minimum Concentration Preparation Method | _____ | TON |
| 412(14) Calcium Chloride Brine @ 36% minimum Concentration Preparation Method | _____ | GAL |
| 412(15) Magnesium Chloride Brine @ 28% minimum Concentration or Calcium Chloride Brine @ 36% minimum Concentration, or Preparation Method | _____ | L.S. |
| 412(16) Calcium Chloride Flake @ 77% minimum Concentration Preparation Method | _____ | TON |

Section 601 - Mobilization

**DESCRIPTION**

601.01 Work

Add the following to this subsection:

Preparatory work shall include cleaning of all equipment used at the project site. The contractor(s) is required to clean all construction equipment prior to entry on the project site. This cleaning shall remove all dirt, plant parts and material that may carry noxious weed seeds into the area. Only construction equipment inspected by the Contracting Officer will be allowed to operate within the project area. All subsequant move-ins of equipment shall be treated the same as the initial move-in. Truck beds and dump boxes hauling to the project site must also be cleaned prior to entering the work area.

Unless otherwise agreed, the Contractor shall give the Contracting Officer at least 24 hours notice of when the equipment is ready for inspection (not including weekends and holidays). Notification will include an agreed upon time and location where the equipment will be available for inspection.

**Section 603 - Metal Pipe**

MATERIALS

603.02
Requirements

Delete the second sentence, last paragraph, and add:

"Pipe should not be ordered until culvert locations are DESIGNATED ON THE GROUND and the correct lengths are determined."

CONSTRUCTION

603.06
Joining Pipes

Replace the last sentence of the first paragraph with the following:

"Dimpled bands shall not be used unless approved by the Engineer in writing."

603.08
Backfilling

At the end of the second paragraph, after "Method A or B," add:

"or C"

After Method B, add:

"Method C - Compaction shall be obtained by a minimum of two passes with a mechanical tamper, approved by the Engineer, for each 6-inch layer (loose thickness) of backfill unless otherwise SHOWN ON THE DRAWINGS."

**Section 720 - Geotextiles**

Replace this Section with AASHTO M 288.

# SCHEDULE OF ITEMS
(Timber Sale)

Timber Sale: Northern Prairie TS

Road No.: 2587

Road Name: Ross

Length (Miles): 1.95

| Item Number | Description | Method of Meas. | Unit | Quantity | S.R.C Unit Price | Total |
|---|---|---|---|---|---|---|
| 201A(01) | Roadway Brushing | D.Q. | Mile | 1.95 | $ 677.97 | $ 1,322.04 |
| 203(19) | Drainage Excavation, Type Outlet Ditch | D.Q. | L.F. | 50.00 | $ 2.00 | $ 100.00 |
| 203(20)2 | Drainage Excavation, Type Rock Ford | A.Q. | Each | 1.00 | $ 350.88 | $ 350.88 |
| 304(16) | Placing Aggregate, Compaction B | D.Q. | C.Y. | 40.00 | $ 13.16 | $ 526.40 |
| 306(01) | Reconditioning of Roadbed, Compaction A | A.Q. | Mile | 1.95 | $ 461.86 | $ 900.63 |
| 601(01) | Mobilization | L.S.Q. | L.S. | 1.00 | $ 1,101.69 | $ 1,101.69 |
| 603(01)18C | 18" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.060, Method C | A.Q. | L.F. | 78.00 | $ 29.66 | $ 2,313.48 |

**SUB-TOTAL: $ 6,615.12**

**TOTAL ALL ROADS:** $ 74,162.87

# SCHEDULE OF ITEMS
(Timber Sale)

Timber Sale: Northern Prairie TS

Road No.: 272

Road Name: Hall Mountain

Length (Miles): 3.25

| Item Number | Description | Method of Meas. | Unit | Quantity | S.R.C Unit Price | Total |
|---|---|---|---|---|---|---|
| 203(19) | Drainage Excavation, Type Outlet Ditch | D.Q. | L.F. | 150.00 | $ 2.00 | $ 300.00 |
| 304(16) | Placing Aggregate, Compaction B | D.Q. | C.Y. | 50.00 | $ 13.16 | $ 658.00 |
| 601(01) | Mobilization | L.S.Q. | L.S. | 1.00 | $ 363.64 | $ 363.64 |
| 603(01)18C | 18" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.060, Method C | A.Q. | L.F. | 36.00 | $ 29.66 | $ 1,067.76 |
| 603(01)36C | 36" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.075, Method C | A.Q. | L.F. | 40.00 | $ 57.20 | $ 2,288.00 |

**SUB-TOTAL: $ 4,677.40**

**TOTAL ALL ROADS: $ 74,162.87**

# SCHEDULE OF ITEMS
(Timber Sale)

Timber Sale: Northern Prairie TS

Road No.: 2228

Road Name: Miller Creek

Length (Miles): 1.4

| Item Number | Description | Method of Meas. | Unit | Quantity | S.R.C Unit Price | Total |
|---|---|---|---|---|---|---|
| 201A(01) | Roadway Brushing | D.Q. | Mile | 1.40 | $ 677.97 | $ 949.16 |
| 203(20)1 | Drainage Excavation, Type Rolling Dip | A.Q. | Each | 1.00 | $ 290.91 | $ 290.91 |
| 304(16) | Placing Aggregate, Compaction B | D.Q. | C.Y. | 255.00 | $ 13.16 | $ 3,355.80 |
| 306(01) | Reconditioning of Roadbed, Compaction A | A.Q. | Mile | 1.40 | $ 461.86 | $ 646.60 |
| 601(01) | Mobilization | L.S.Q. | L.S. | 1.00 | $ 423.73 | $ 423.73 |
| 603(01)18C | 18" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.060, Method C | A.Q. | L.F. | 60.00 | $ 29.66 | $ 1,779.60 |

**SUB-TOTAL: $ 7,445.80**

**TOTAL ALL ROADS: $ 74,162.87**

# SCHEDULE OF ITEMS

(Timber Sale)

Timber Sale: Northern Prairie TS

Road Name: Mission Mountain

Road No.: 2481

Length (Miles): 11.1

| Item Number | Description | Method of Meas. | Unit | Quantity | S.R.C Unit Price | Total |
|---|---|---|---|---|---|---|
| 201A(01) | Roadway Brushing | D.Q. | Mile | 1.60 | $ 677.97 | $ 1,084.75 |
| 304(16) | Placing Aggregate, Compaction B | D.Q. | C.Y. | 1,090.00 | $ 13.16 | $ 14,344.40 |
| 306(01) | Reconditioning of Roadbed, Compaction A | A.Q. | Mile | 11.10 | $ 461.86 | $ 5,126.65 |
| 412(16) | Calcium Chloride Flake @77% Min. Concentration Preparation Method 1 | A.Q. | Ton | 78.00 | $ 380.00 | $ 29,640.00 |
| 601(01) | Mobilization | L.S.Q. | L.S. | 1.00 | $ 3,389.83 | $ 3,389.83 |
| 603(01)18C | 18" CMP (incl culv exc), Thickness: Steel 0.064 Thickness: Aluminum 0.060, Method C | A.Q. | L.F. | 62.00 | $ 29.66 | $ 1,838.92 |

**SUB-TOTAL: $ 55,424.55**

**TOTAL ALL ROADS: $ 74,162.87**

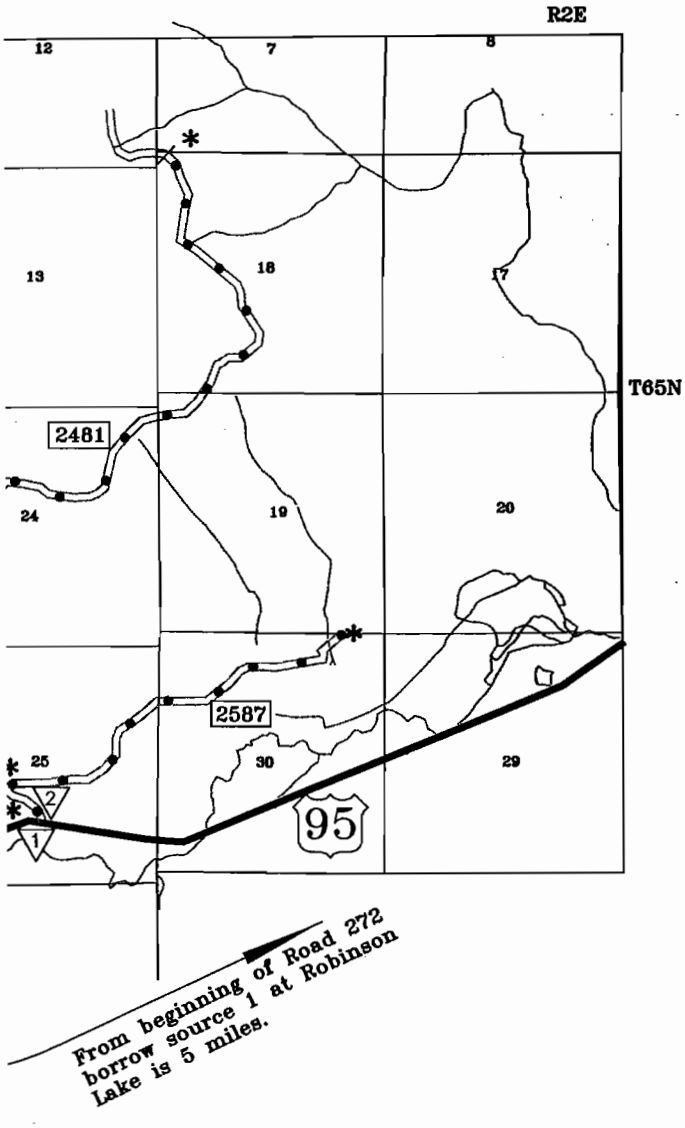
# ENT OF AGRICULTURE
## EST SERVICE
## EGION ONE
SED FOREST DEVELOPMENT ROADS

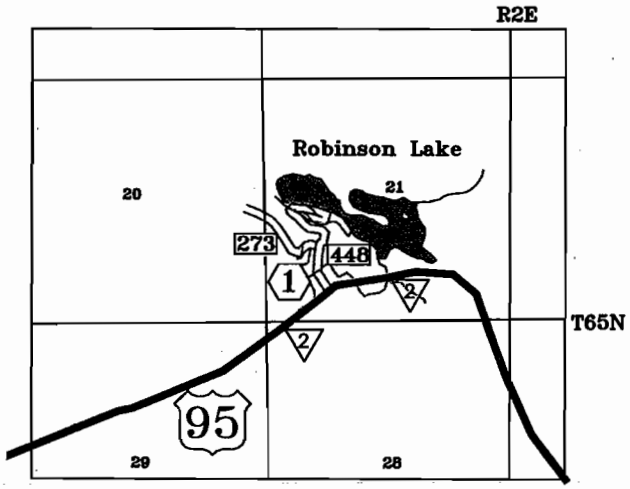
# ERN PRAIRIE
OREST ROADS

ONNERS FERRY RANGER DISTRICT – BOUNDARY COUNTY, IDAHO

**INDEX TO SHEETS**


1 Title Sheet
2 Summary of Quantities
3 Notes and typicals
4 Rd 272
5 Rd 2481
6 Rd 2481(Cont)
7 Rds 2228 & 2587
8 Coupling Detail 1
9 Coupling Detail 2
10 Coupling Detail 3
11 Culvert Details


MAP

ONE SQUARE MILE

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

Recommended and certified to be technically correct

Dallas Thomson 5/6/08
Project Team Leader

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

Forest Engineer

Approved:

Linda McFaddan 5/5/08
District Ranger Date

# TED QUANTITIES

| Road Number | | 272 | 2228 | 2481 | 2587 | TOTAL ESTIMATED QUANTITIES |
|---|---|---|---|---|---|---|
| Total Road Length (miles) | | 3.25 | 1.40 | 11.10 | 1.95 | |
| NIT OF EASURE | COMPONENT CODE | Quantities | | | | |
| Mile | 2 | | 1.40 | 1.60 | 1.95 | 4.95 |
| Lin Ft | 1 | 150.00 | | | 50.00 | 200.00 |
| Each | 1 | | 1.00 | | | 1.00 |
| Each | 1 | | | | 1.00 | 1.00 |
| CY | 2 | 50.00 | 255.00 | 1090.00 | 40.00 | 1435.00 |
| Mile | 2 | | 1.40 | 11.10 | 1.95 | 14.45 |
| Ton | 2 | | | 78.00 | | 78.00 |
| ump Sum | 2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lin Ft | 3 | 36.00 | 60.00 | 62.00 | 78.00 | 236.00 |
| Lin Ft | 3 | 40.00 | | | | 40.00 |

## NOTES:

he Contractor shall have the responsibility for furnishing, installing, aintaining, and removing construction warning signs in conformance with the latest evision of the Manual of Uniform Traffic Control Devices (M.U.T.C.D).
/arning signs shall be installed prior to beginning of work as SHOWN ON THE DRAWINGS nd as designated by the Contracting Officer.
uring periods of non-work (weekends, holidays, end of work day, etc.) all gns shall be covered or removed.
ll warning signs shall be removed from the project by the Contractor pon completion and acceptance of the project.
ayment to the Contractor for furnishing, installing, maintaining, and emoving construction warning signs is included in Pay Item 601(01), Mobilization. o separate payment will be made.
igns shall not be attached to trees or existing sign posts.
ign W21-3, 'Road Machinery Ahead', shall be placed on the open road side not more han 500' from activities when directed by the Contracting Officer.

## RAL NOTES:

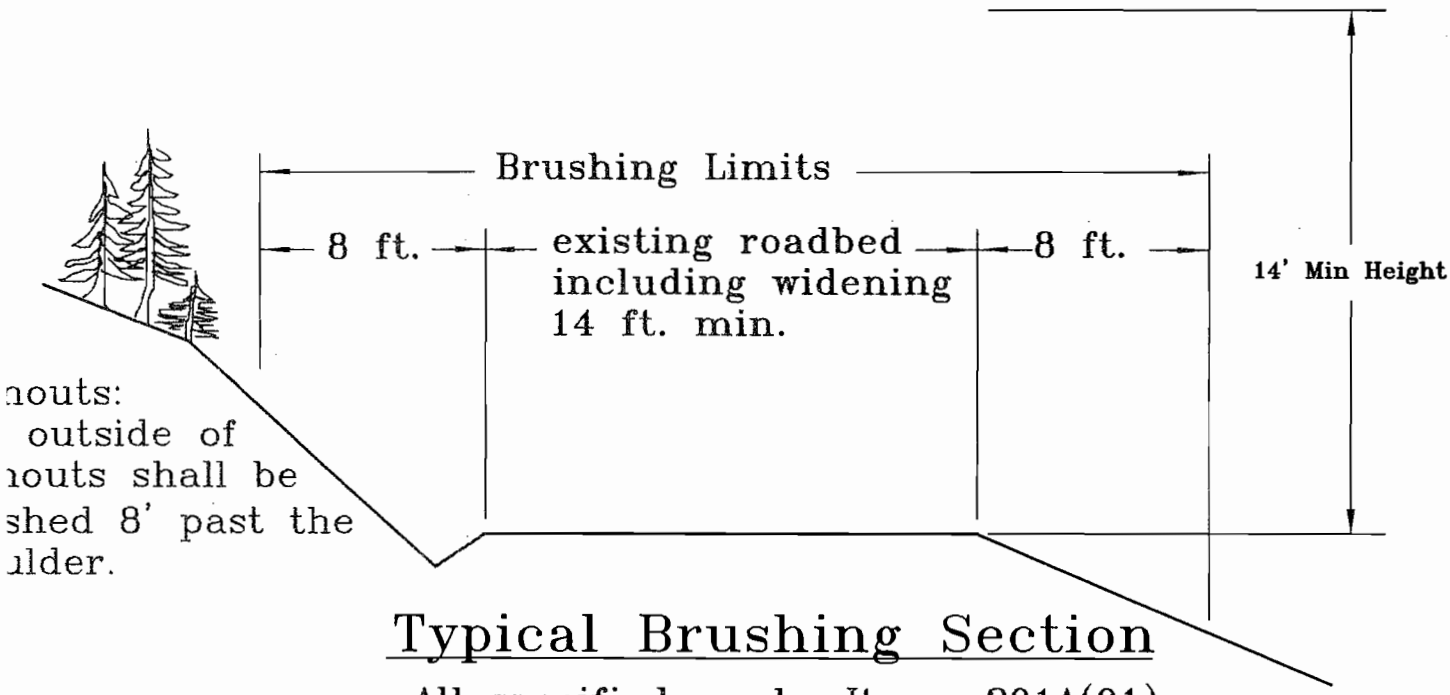
llowing construction tolerance designation and construction methods shall be used as ped in Section 203 of the STANDARD PROJECT SPECIFICATIONS:
uction Tolerance (E)
ment Construction Method (1) Side Casting and End Dumping
able excavation shall be disposed of as shown on the drawings or as directed by the cting Officer.

Drawn Ned Davis
Design
Checked
Reviewed

Forest
Idaho Panhandle
Project Name
Northern Prairie TS

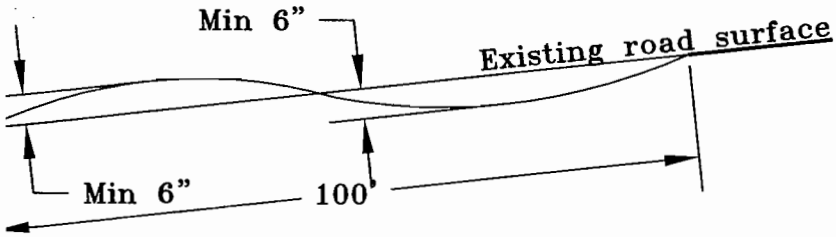
Sheet Title
Summary of Quanities
Sheet 2 of 11

pplication rate for CaCl Flake shall be 2.00 pounds per square yard.
ıtitution may be made as follows: Magnesium Chloride Brine, .66 gal/sq.yd.
applications of 0.33 gal/sq.yd.) Calcium Chloride Brine, .94 gal/sq.yd. (two
ications of .47 gal/sq.yd.) All applications shall be 12' wide.
ection 304.06: Water sources for aggregate placement are shown on the
ings and staked in the ground. Watering aggregate is incidental to Item
16) and no additional payment shall be made.
dditional aggregate width for curve widening or turnouts not required.
ection 306.02: Blend marked intersections a distance of 50 feet.
ection 203.06, 306.02, 206A.04, Excess, oversize or
ıitable material shall be sidecast uniformly over adjacent fill slopes.
ORROW SOURCE: Source 1 is an existing FS stockpile, in T65N, R2E, Section
Directions to this stockpile shall be provided at the pre-work meeting.




## Typical Brushing Section

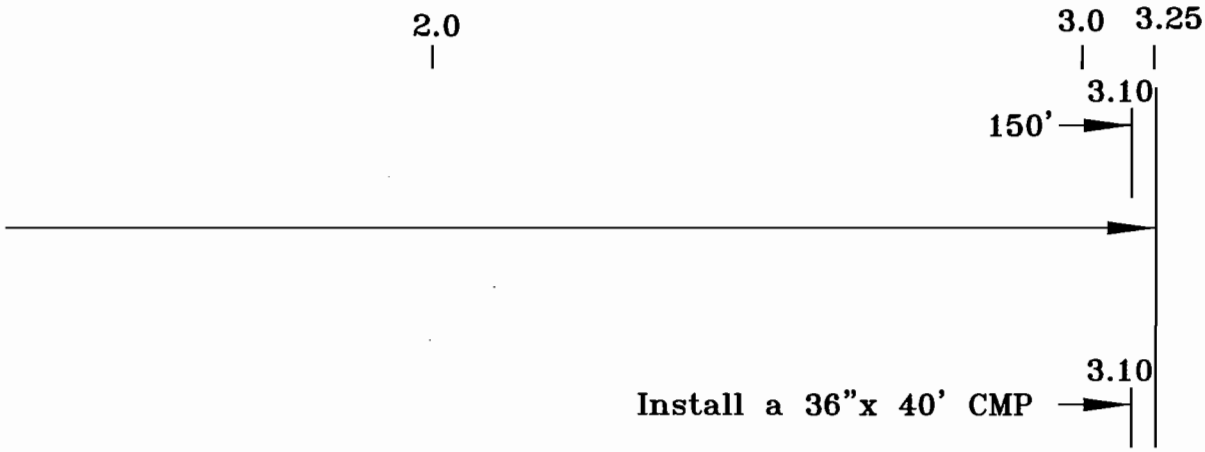
All specified roads, Items 201A(01)



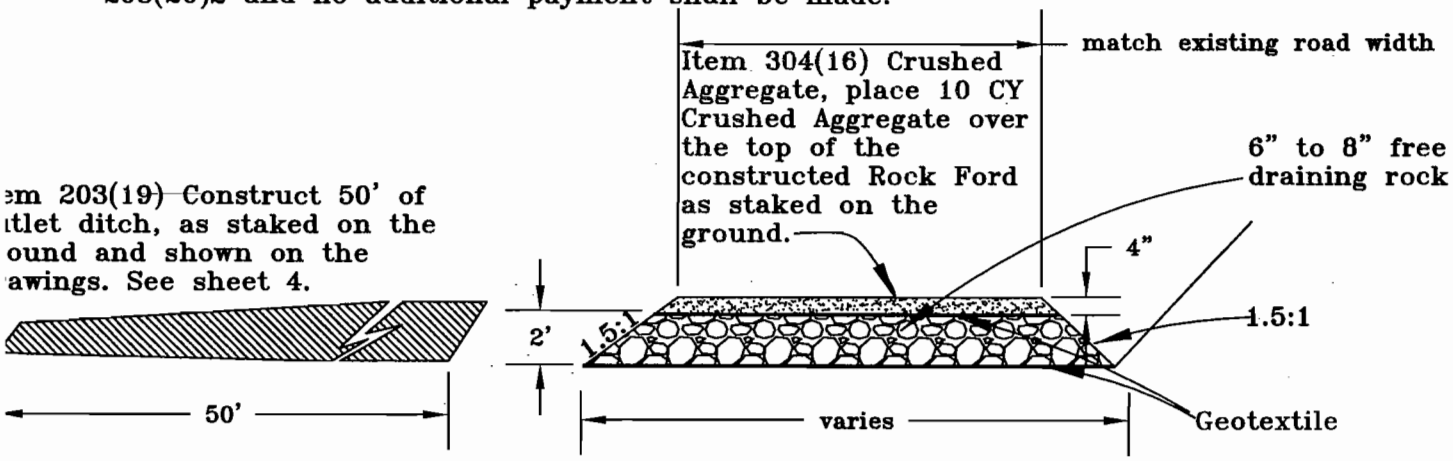

## Rolling Dip Detail

' 1.4 – Road 2228, Item 203(20)1 Rolling Dip

| | | |
|---|---|---|
| Drawn Ned Davis<br>Design<br>Checked<br>Reviewed | Forest<br>Idaho Panhandle<br>Project Name<br>Northern Prairie TS | Sheet Title<br>Notes and Typicals<br>Sheet 3 of 11 |




NOTE:
Rock Ford shall be constructed as shown on the drawings and staked on the ground. The minimum dimensions are as follows, 2' deep, 6' long (along road length) and as wide as the the road at point of installation.
A layer of medium weight woven geotextile shall be placed in the bottom of the excavated bed prior to placing 2' of 6" to 8" free draining rock* (commercial source). After placing the rock place another layer of geotextile and surface with crushed aggregate. The rock and geotextile are incidental to Item 203(20)2 and no additional payment shall be made.



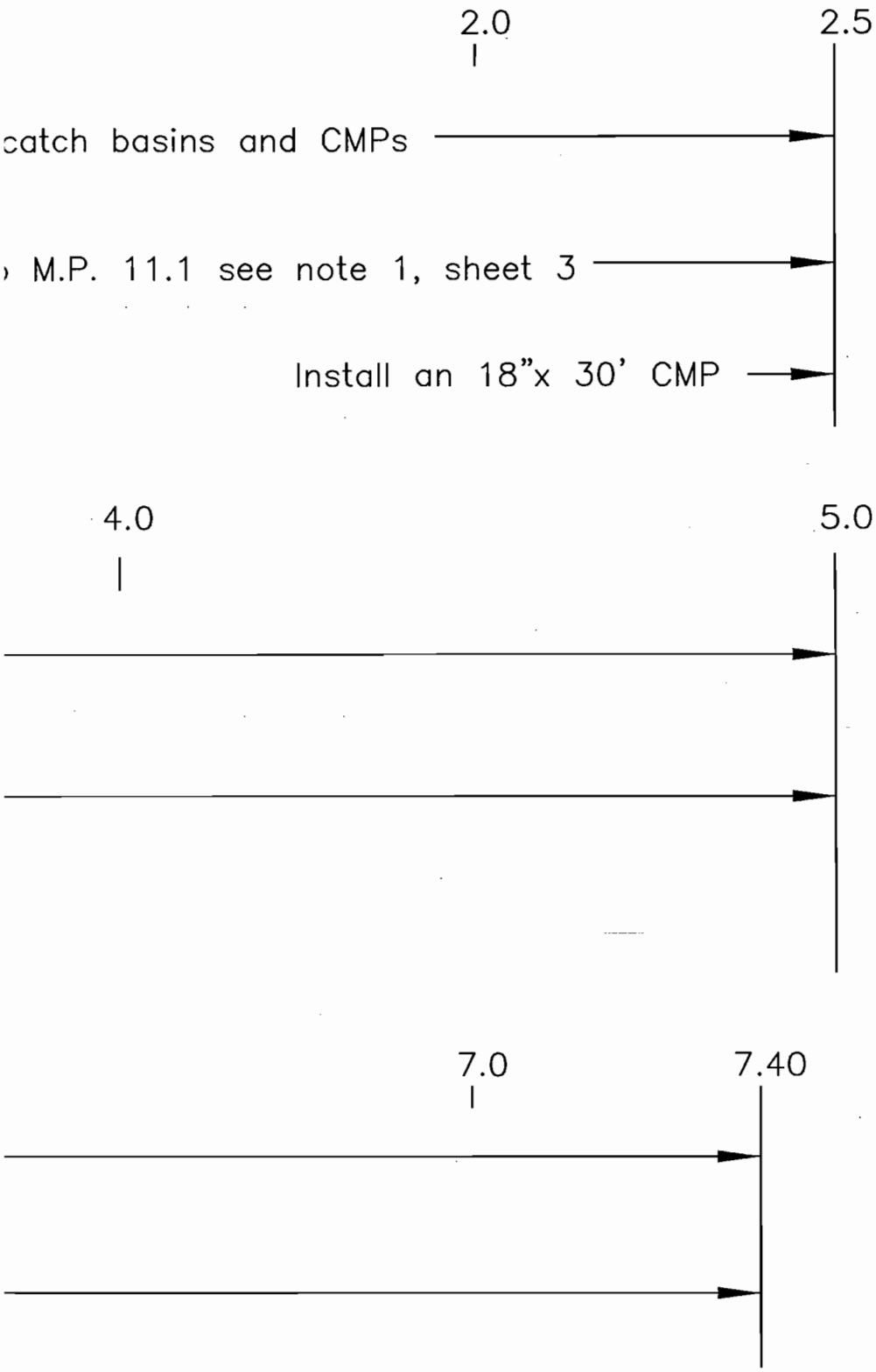

em 203(19) Construct 50' of
ıtlet ditch, as staked on the
ound and shown on the
awings. See sheet 4.

# Rock Ford Section

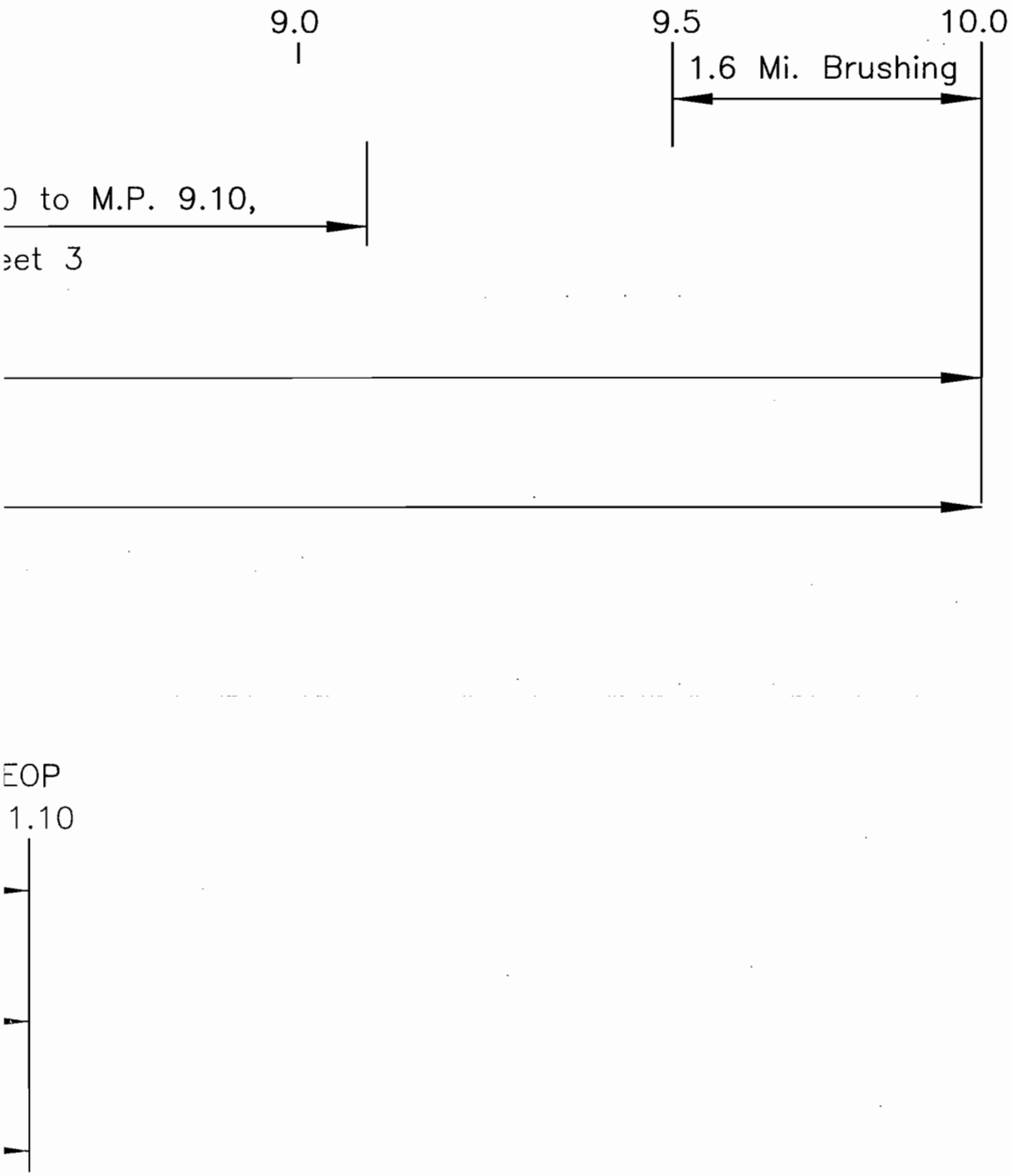
Item 203(20)2 Rock Ford, 1 Each
Road 2587 MP 1.65

ock for the Ford shall be angular
l fractured on 2 or more sides. It
ıll also be tough and durable.

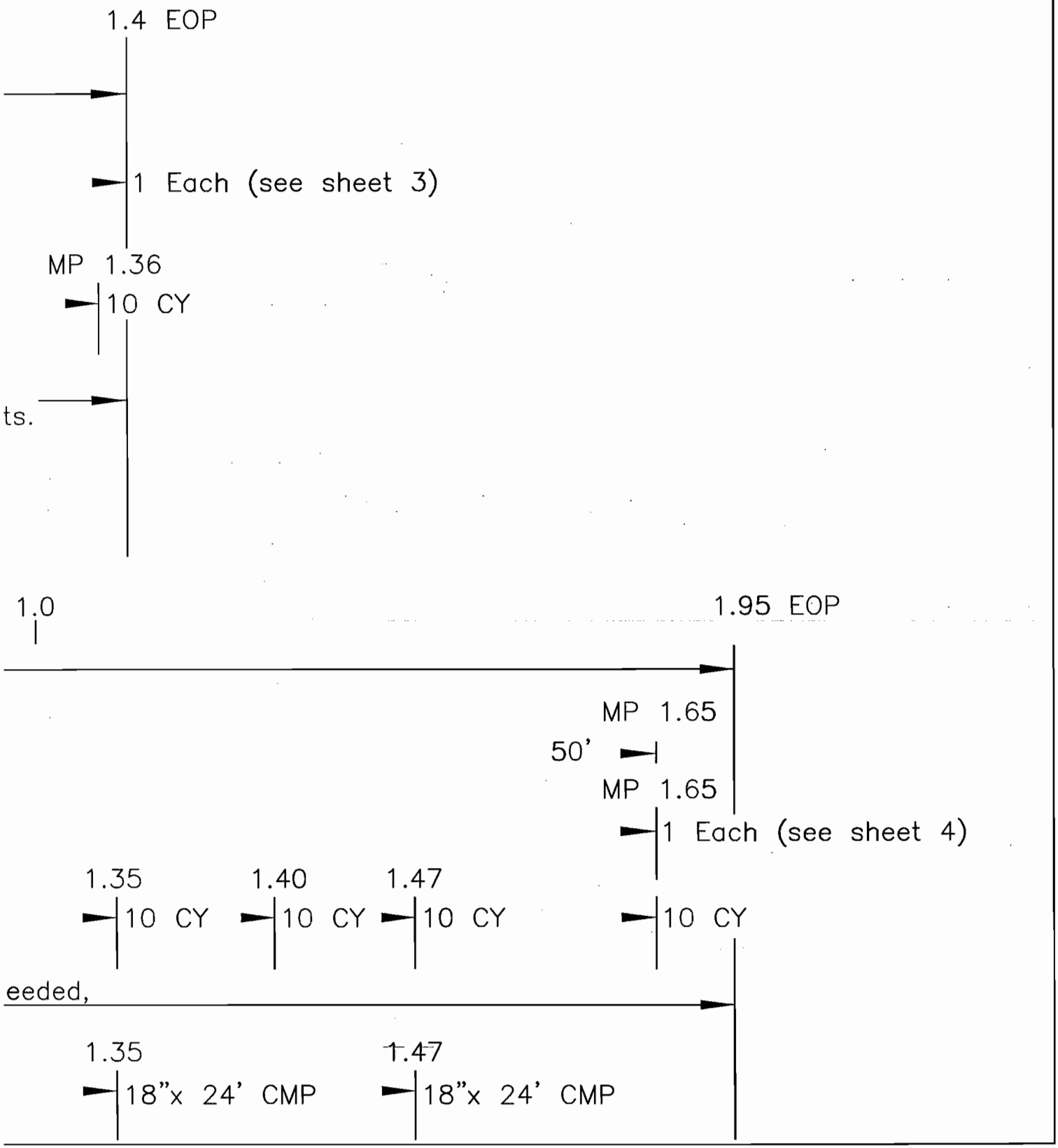
| | | |
|---|---|---|
| Drawn Ned Davis<br>Design<br>Checked<br>Reviewed | Forest<br>Idaho Panhandle<br>Project Name<br>Northern Prairie TS | Sheet Title<br>Rd 272<br>Sheet 4 of 11 |



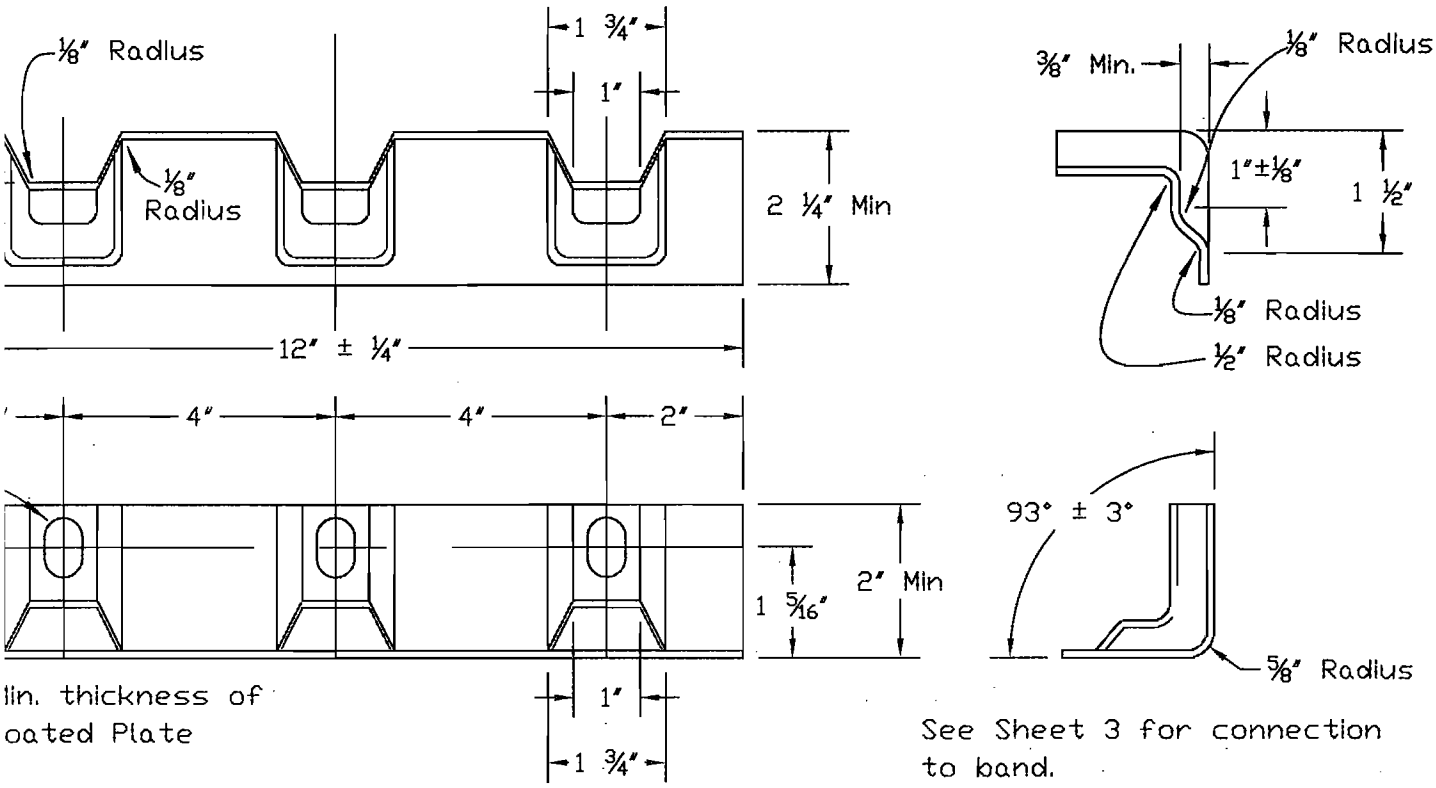

| | | |
|---|---|---|
| Drawn Ned Davis<br>Design<br>Checked<br>Reviewed | Forest<br>Idaho Panhandle<br>Project Name<br>Northern Prairie TS | Sheet Title<br>Rd 2481<br>Sheet 5 of 11 |



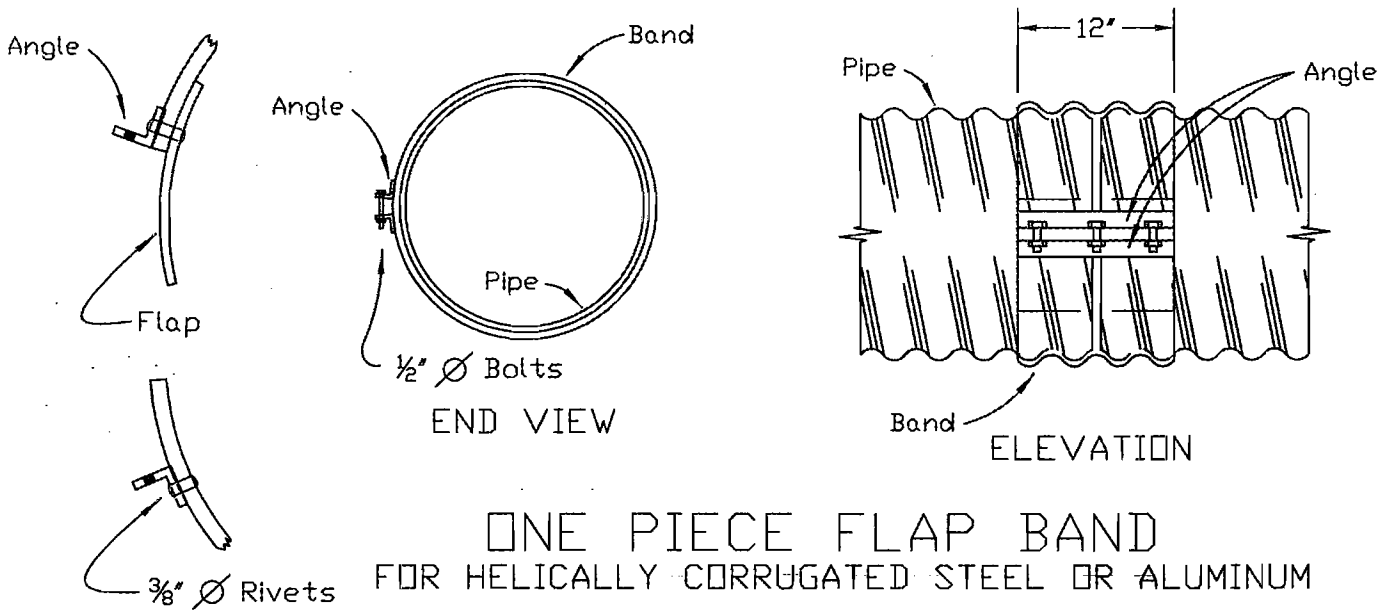

| | | | |
|---|---|---|---|
| Drawn | Ned Davis | Forest | Idaho Panhandle |
| Design | | Project Name | Northern Prairie TS |
| Checked | | Sheet Title | Rd 2481 (Cont) |
| Reviewed | | Sheet | 6 of 11 |




| | | |
|---|---|---|
| Drawn Ned Davis<br>Design<br>Checked<br>Reviewed | Forest<br>Idaho Panhandle<br>Project Name<br>Northern Prairie TS | Sheet Title<br>Rds 2228 & 2587<br>Sheet 7 of 11 |

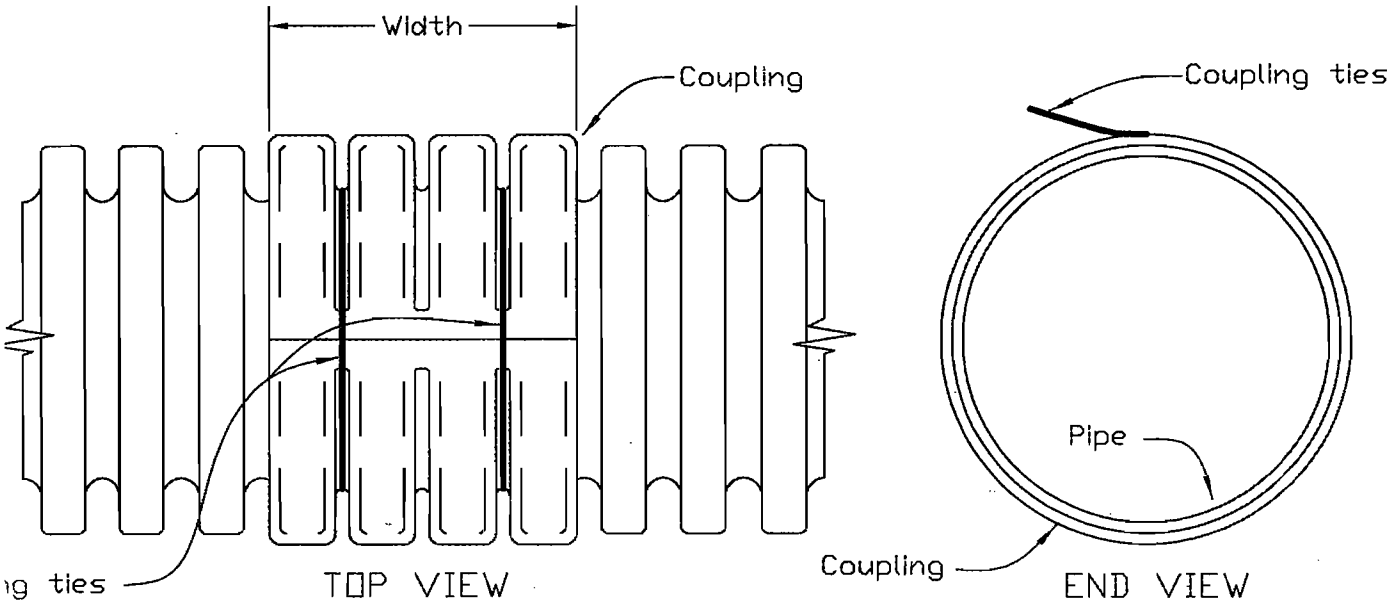



'EST CULVERT ANGLE ALTERNATIVE
FOR STEEL PIPE



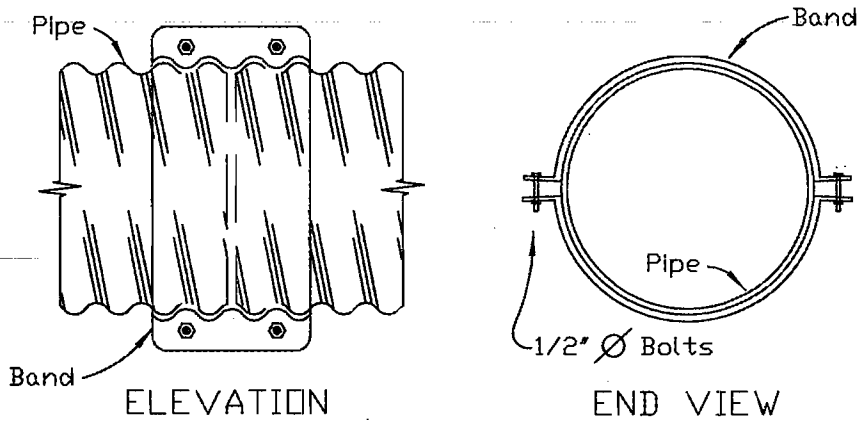

ONE PIECE FLAP BAND
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM

COUPLING BAND DETAILS
FOR
CORRUGATED PIPE AND PIPE ARCH




# SPLIT COLLAR COUPLING
## ? 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.




# 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.

ND
END
EL

COUPLING BAND DETAILS
FOR
CORRUGATED PIPE AND PIPE ARCH

- See Note 1-H

| ER | ANGLE TO BAND | |
|---|---|---|
| | RIVETS | SPOT WELDS |
| | 3-3/8 | 5-1/2 |
| | 3-3/8 | 5-1/2 |
| | 5-3/8 | |
| | 7-3/8 | |
| | 3-3/8 | 5-1/2 |
| | 5-3/8 | |
| | 9-3/8 | |
| | 4-3/8* | * Flap Band Only |

| WELDS ANGLE TO BAND |
|---|
| 7-1/8x3/4 Long Fillet |
| 5-3/16x3/4 Long Fillet |
| 5-1/2 Spot |

AND STRAP

| ER | BAR DIAMETER | BAR YIELD STRENGTH P.S.I. |
|---|---|---|
| | 7/8 | 32,000 |
| | 7/8 | 45,000 |
| | 7/8 | 32,000 |
| | 7/8 | 45,000 |
| | 7/8 | 32,000 |
| | 7/8 | 32,000 |
| | 7/8 | 45,000 |

# 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%.

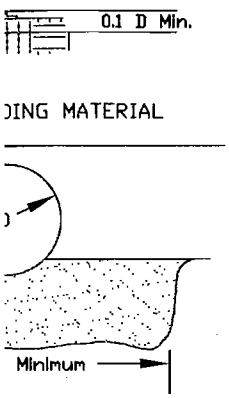
   B. Where the fill below the culvert is less than 2 feet.

   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




DING MATERIAL

DATION

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DATION

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pecified in Spec. 203
06.

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. DETAIL

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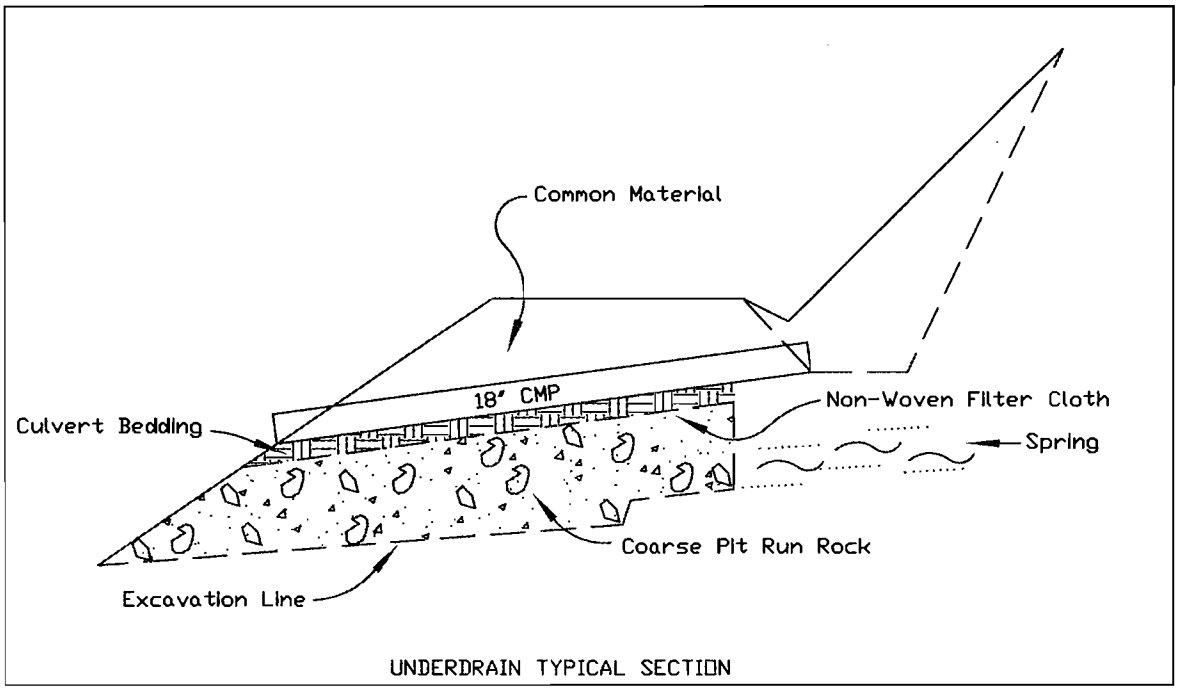
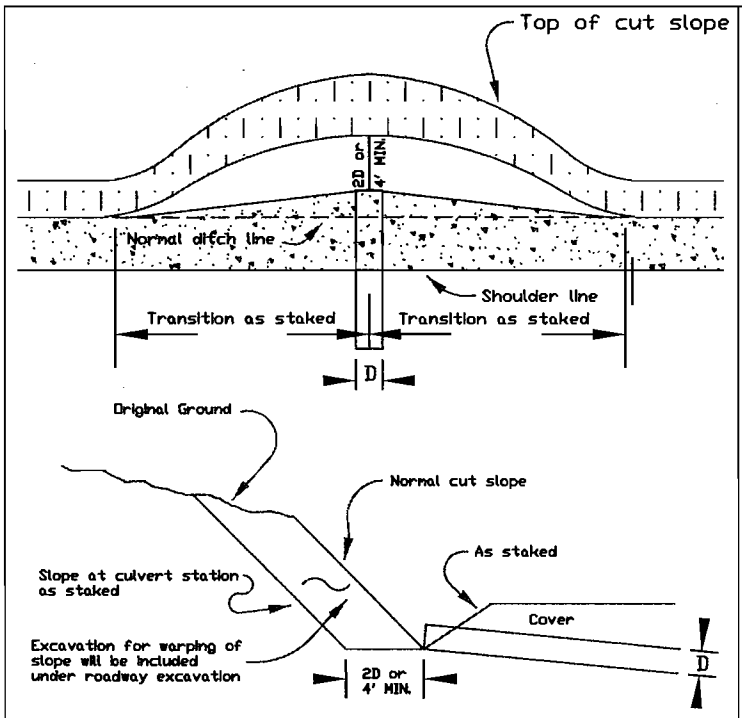
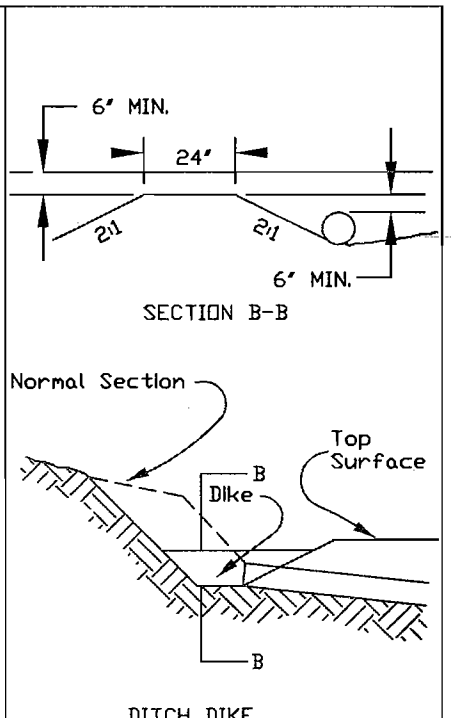
fit the bottom



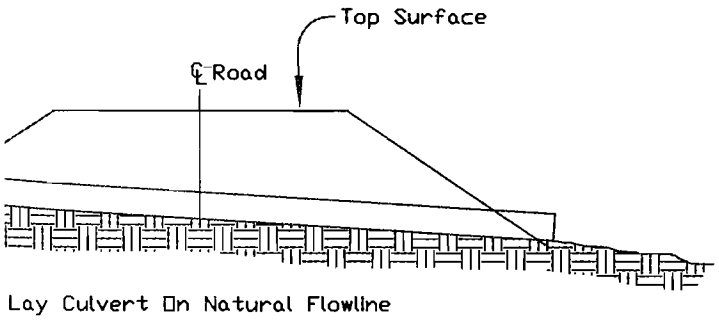

UNDERDRAIN TYPICAL SECTION




TREATMENT OF CUT SLOPE AT CULVERT INLET




DITCH DIKE




Lay Culvert On Natural Flowline

ALLATION IN STREAM CHANNEL

NO SCALE

# CULVERT DETAILS