

Attachments

Key to Attachments

Table of Contents

Sale Name: Slow DXP

| <u>Attachments Title</u> | <u>PAGES</u> |
|---|--------------|
| A. Specification List | 3 - 4 |
| B. Supplemental Specifications | 5 - 11 |
| C. T-Specifications | 12 - 43 |
| D. Specified Road Reconstruction | As Shown |
| E. Temporary Bridge Design & Specifications | As Shown |

Attachment

A

FOREST SERVICE STANDARD SPECIFICATIONS AND SUPPLEMENTALS FOR CONSTRUCTION OF ROADS AND BRIDGES SPECIFICATION LIST

All specifications not included in the specification listing, but referenced by listed specifications, are applicable. The supplements shown on the specification listed are physically attached. Section 100 through 109 of the Standard Specifications and all other Standard or Supplemental Specifications shown in the specification listing are applicable to this contract.

| | | | | | | | | | |
|----------------------|----------------------|----------------------|-----|--|--|--|--|--|--|
| | Attachment A | ROAD NAME | N/A | | | | | | |
| CONTRACT NAME | Slow DXP Timber Sale | ROAD NUMBER | N/A | | | | | | |
| | | Miles/Sites | N/A | | | | | | |
| DATE PREPARED | 02/26/2016 | CONST/RECONST | N/A | | | | | | |

| | | | | | | | | | |
|-----------|--|----------|--|--|--|--|--|--|--|
| 157 | SOIL EROSION CONTROL | 2003 | | | | | | | |
| 157.03 | General | 02/24/05 | | | | | | | |
| 157.10(c) | Check Dams | 2003 | | | | | | | |
| 157.13 | Maintenance and Cleanup | 2003 | | | | | | | |
| 703 | AGGREGATE | 2003 | | | | | | | |
| 703.05 | Subbase, Base & Surface Course, and Screened Aggregate | 12/07/06 | | | | | | | |
| | T-SPECS | | | | | | | | |
| | (See C5.31# & Applicable T-SPECS For Details) | | | | | | | | |
| | PREFACE | 01/08 | | | | | | | |
| T-803 | SNOW REMOVAL | 05/07/07 | | | | | | | |
| T-811 | BLADING | 10/07/07 | | | | | | | |
| T-812 | DUST ABATEMENT | 05/07/07 | | | | | | | |
| T-813 | SURFACING | 10/07/07 | | | | | | | |
| T-831 | DITCH MAINTENANCE | 10/07/07 | | | | | | | |
| T-832 | REMOVE AND END HAUL MATERIALS | 05/07/07 | | | | | | | |
| T-834 | DRAINAGE STRUCTURE MAINTENANCE | 10/07/07 | | | | | | | |
| T-835 | ROADWAY DRAINAGE MAINTENANCE | 05/07/07 | | | | | | | |
| T-836 | MAINTENANCE FOR LIMITED USE | 05/07/07 | | | | | | | |
| T-838 | MAINTENANCE FOR HIGH CLEARANCE VEHICLE USE | 05/07/07 | | | | | | | |
| T-839 | MAINTENANCE FOR PROJECT USE | 05/07/07 | | | | | | | |
| T-841 | VEGETATION ESTABLISHMENT | 05/07/07 | | | | | | | |
| T-842 | CUTTING ROADWAY VEGETATION | 10/07/07 | | | | | | | |
| T-851 | LOGGING OUT | 05/07/07 | | | | | | | |
| T-854 | TREATMENT AND DISPOSAL OF DANGER TREES | 05/07/07 | | | | | | | |
| T-891 | WATER SUPPLY AND WATERING | 05/07/07 | | | | | | | |
| T-892 | BITUMINOUS PRODUCTS | 05/07/07 | | | | | | | |

Attachment

B

Supplemental Specifications**157 - Soil Erosion Control**

157.03_nat_us_02_24_2005

157.03 General

Delete the entire subsection and replace with the following:

Prior to the start of construction, submit a written plan that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Do not begin work until the necessary controls for that particular phase of work have been implemented. Do not modify the type, size, or location of any control. An alternate erosion control plan with all necessary permits may be submitted 30 days before intended use.

Incorporate all permanent erosion control features into the project at the earliest practicable time, as outlined in the approved plan.

When erosion control measures are not functioning as intended, immediately take corrective action.

703 - Aggregate

703.05_nat_us_12_07_2006

Delete 703.05 and replace with the following:

703.05 Subbase, Base, Surface Course, and Screened Aggregate.

(a) **Subbase or base aggregate.** Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

| | |
|---|-------------|
| (1) Gradation | Table 703-2 |
| (2) Liquid limit, AASHTO T 89 | 25 max. |
| (3) Plastic limit, AASHTO T 90 | Nonplastic |
| (4) Los Angeles abrasion, AASHTO T 96 | 40% max. |
| (5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104 | 12% max. |
| (6) Durability index (coarse), AASHTO T 210 | 35 min. |
| (7) Durability index (fine), AASHTO T 210 | 35 min. |
| (8) Fractured faces, ASTM D 5821 | 50% min. |
| (9) Free from organic matter and lumps or balls of clay | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(b) **Surface course aggregate.** Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

| | |
|---|-------------|
| (1) Gradation | Table 703-3 |
| (2) Liquid limit, AASHTO T 89 | 35 max. |
| (3) Plastic Index, AASHTO T 90 | |
| a) If the percent passing the No. 200 sieve is less than 12% | 2 to 9 |
| b) If the percent passing the No. 200 sieve is greater than 12% | Less than 2 |
| (4) Los Angeles abrasion, AASHTO T 96 | 40% max. |
| (5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104 | 12% max. |
| (6) Durability index (coarse), AASHTO T 210 | 35 min. |
| (7) Durability index (fine), AASHTO T 210 | 35 min. |
| (8) Fractured faces, ASTM D 5821 | 75% min. |
| (9) Free from organic matter and lumps or balls of clay | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Do not furnish material that contains asbestos fibers.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(c) Screened aggregate - Furnish hard, durable particles or fragments of stone, slag, or gravel conforming the following:

- | | |
|--|--------------|
| (1) Gradation | Table 703-16 |
| (2) Plastic Index, AASHTO T 90 | Less than 9 |
| (3) Los Angeles abrasion, AASHTO T 96 | 55% max. |
| (4) Free from organic matter and lumps or balls of clay. | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary.

Delete Table 703-2 and replace with the following:

**Table 703-2
Target Value Ranges for Subbase and Base Gradation**

| Sieve Size | Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11) | | | | | |
|------------|---|----------------|---------------|---------------|---------------|---------------|
| | Grading Designation | | | | | |
| | A (Subbase) | B (Subbase) | C (Base) | D (Base) | E (Base) | |
| 2½ inch | 100 | | | | | |
| 2 inch | 97 - 100 | 100 | | | | |
| 1½ inch | | 97 - 100 | | | | |
| 1 inch | 65 - 79 (6) | | 80 - 100 (6) | 100 | | |
| ¾ inch | | | 64 - 94 (6) | 86 - 100 (6) | 100 | |
| ½ inch | 45 - 59 (7) | | | | | |
| ⅜ inch | | | 40 - 69 (6) | 51 - 82 (6) | 62 - 90 (6) | |
| No. 4 | 28 - 42 (6) | 40 - 60 (8) | 31 - 54 (6) | 36 - 64 (6) | 36 - 74 (6) | |
| No. 40 | 9 - 17 (4) | | | 12 - 26 (4) | 12 - 26 (4) | |
| No. 200 | 4.0 - 8.0 (3) | 4.0 - 12.0 (4) | 4.0 - 7.0 (3) | 4.0 - 7.0 (3) | 4.0 - 7.0 (3) | 4.0 - 7.0 (3) |

() The value in the parentheses is the allowable deviation (±) from the target values..

Delete Table 703-3 and replace with the following:

**Table 703-3
Target Value Ranges for Surface Gradation**

| Sieve Size | Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11) | | | | | | |
|------------|---|-----------------|----------------|----------------|----------------|----------------|--|
| | F | G | H | S | T | U | |
| 1 1/2 inch | 100 ⁽⁴⁾ | | | 100 | | | |
| 1 inch | 97-100 | 100 | | 72 - 92 (6) | 100 | | |
| 3/4 inch | 76-89 (6) | 97 - 100 | 97 - 100 | | | 100 | |
| 1/2 inch | | | | | 71 - 91 (6) | | |
| 3/8 inch | 56-68 (6) | 70 - 80 (6) | 80 - 92 (6) | 51 - 71 (6) | | 71 - 90 (6) | |
| No. 4 | 43-53 (7) | 51 - 63 (7) | 58 - 70 (7) | 36 - 53 (7) | 43 - 60 (7) | 50 - 68 (7) | |
| No. 8 | | | | 26 - 40 (6) | 30 - 46 (6) | 34 - 51 (6) | |
| No. 16 | 23-32 (6) | 28 - 39 (6) | 28 - 40 (6) | | | | |
| No. 40 | 15-23 (5) | 19 - 27 (5) | 16 - 26 (5) | 14 - 25 (5) | 16 - 28 (5) | 19 - 30 (5) | |
| No. 200 | 10.0-16.0 (4) | 10.0 - 16.0 (4) | 9.0 - 14.0 (4) | 8.0 - 15.0 (4) | 8.0 - 15.0 (4) | 8.0 - 15.0 (4) | |

() The value in the parentheses is the allowable deviation (\pm) from the target values.
If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 8-12 (4).

Add Table 703-16:

**Table 703-16
Gradation Requirements for Screened Aggregate**

| Sieve Size | Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11) | | | | | | |
|------------|---|-------|-----|-------|-----|-------|-----|
| | Grading Designation | | | | | | |
| | L | M | N | O | P | Q | R |
| 6 inch | 100 | 100 | | | | | |
| 4 inch | | | 100 | 100 | | | |
| 3 inch | | | | | 100 | 100 | |
| 2 inch | | | | | | | 100 |
| No. 4 | | 15-45 | | 15-45 | | 15-45 | |

SPECIAL PROJECT SPECIFICATION
814 ASPHALT PAVEMENT PATCHING (7/06)

814.01

Description

This work consists of patching potholes and skin patching of asphalt surfaces. The work includes preparing the area to be patched, furnishing and placing all necessary materials and work. All areas to be patched will be marked by the Government.

814.02

Materials

Bituminous material and aggregate used for asphalt patching shall conform to the requirements in Sections 702 and 703 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03)". Bituminous mixture material shall conform to requirements as shown in the SPECIAL PROJECT SPECIFICATIONS.

814.03

Maintenance

Requirements

A. Potholes

1. Remove existing materials to a minimum depth of 50 mm (2 inches) or as necessary to reach firm support, but limited to maximum 300 mm (12 inches) depth. If firm support for a patch is not available, barricade the hole and notify the Government. Prior to Contractor placing any materials, Government will determine corrections to be made.
2. Extend the edges of the prepared hole to form a vertical face in unfractured asphalt surfacing. Generally prepare the hole to be round or rectangular in shape and cleaned of all loose material. Spray the bottom and sides with an emulsified asphalt.
3. Patch or barricade prepared holes immediately.
4. Place the bituminous mixture in layers not exceeding 100 mm (4 inches). Compact each layer thoroughly with hand tampers, mechanical tampers, or rollers.
5. Compact the finished surface with a tamper or a 7- to 9-metric-ton (7-10 ton) steel roller or comparable vibratory roller. Upon completion, the compacted pothole patch shall be flush with or no more than 7 mm ($\frac{1}{4}$ inch) above the level of the adjacent pavement.

B. Skin Patches

1. Patch potholes prior to skin patching.
2. Treat minor depressions, light raveling, or surface checking at scattered locations shown on the Drawings or marked on the ground by applying a skin patch.
3. Prior to skin patching, clean the surface of loose and deleterious material, then spray with emulsified asphalt at the rate ordered by the Government. Do not place bituminous mixture until the prepared surface is approved, in writing, by the Government.
4. Distribute bituminous mixture uniformly in layers not to exceed 50 mm (2 inch) compacted depth. When multiple layers are required, joints shall be offset at least 150 mm (6 inches) between layers.
5. Compact each layer with a 7- to 9-metric-ton (7-10 ton) steel roller or comparable vibratory roller.
6. Transitions of the completed patch will be at least as smooth as the adjacent pavement after twenty-four (24) hours of exposure to traffic.

C. Disposal- Dispose of all materials removed from pothole and skin patching operations by removing material from the project area and disposing of the material in a legal manner.

Attachment

C

Attachment C - T-Specifications

FOREST SERVICE
SPECIFICATIONS FOR
MAINTENANCE OF
ROADS IN
TIMBER SALES

PACIFIC NORTHWEST REGION
EM 7730-20

01/23/2008

TIMBER SALE CONTRACTROAD MAINTENANCE SPECIFICATIONS

| <u>SPEC#</u> | <u>SUBJECT DESCRIPTION</u> | <u>DATE</u> |
|--------------|--|-------------|
| T-803 | Snow Removal | 05/07/2007 |
| T-811 | Blading | 10/07/2007 |
| T-812 | Dust Abatement | 05/07/2007 |
| T-813 | Surfacing | 10/07/2007 |
| T-831 | Ditch Maintenance | 10/07/2007 |
| T-832 | Remove And End Haul Materials | 05/07/2007 |
| T-834 | Drainage Structure Maintenance | 10/07/2007 |
| T-835 | Roadway Drainage Maintenance | 05/07/2007 |
| T-836 | Maintenance for Limited Use | 05/07/2007 |
| T-838 | Maintenance for High Clearance Vehicle Use | 05/07/2007 |
| T-839 | Maintenance for Project Use | 05/07/2007 |
| T-841 | Vegetation Establishment | 05/07/2007 |
| T-842 | Cutting Roadway Vegetation | 10/07/2007 |
| T-851 | Logging Out | 05/07/2007 |
| T-854 | Treatment and Disposal of Danger Trees | 05/07/2007 |
| T-891 | Water Supply and Watering | 05/07/2007 |
| T-892 | Bituminous Products | 05/07/2007 |

SUPPORTING DOCUMENTS FOR MAINTENANCE SPECIFICATIONS

| <u>SUBJECT DESCRIPTION</u> | <u>DATE</u> |
|----------------------------|-------------|
| Cover Content Preface | 01/08 |
| Cover Pages | 01/08 |
| Intent Use Guide | 01/08 |

NO DRAWINGS ACCOMPANY THESE SPECIFICATIONS.

PREFACE
01/08

The Pacific Northwest Region of the Forest Service has developed this book for use in the preparation and administration of maintenance requirements included in Timber Sale Contracts.

Included are the Standard Specifications (Sections) that commonly apply in Timber Sale Contracts. Conditions and requirements specific to individual projects are identified in the Special Project Specifications.

Special Project Specifications, which do not change the intent of the parent section, may be approved by the Forests.

This book is available from the Supervisor's Office of any National Forest in Region 6.

Maintenance Level Requirements

Maintenance Levels - The following are abbreviated descriptions of maintenance levels.

1. **Maintenance Level II** - Conditions are suitable for high clearance vehicle travel at prudent driving speeds less than 15 mph. Road is maintained in accordance with Section T-836.
2. **Maintenance Level III** - Minimum conditions are provided for passenger car use. Surface provides moderately convenient travel at prudent driving speeds between 15 and 25 mph with corresponding surface roughness tolerated. The surface meets the following conditions.
 - a. Potholes or washboard in wheel tracks normally do not exceed 2 inches in depth, and should not be of such frequency that traffic tends to widen traveled way to avoid the deformities.
 - b. Surface is drained and substantially retains its cross slope or crown.
 - c. Wheel ruts caused by use shall not be in excess of 3 inches in depth on horizontal curves.
3. **Maintenance Level IV** - Higher consideration than in Level III is given to comfort and convenience of the passenger car and commercial user at prudent driving speeds above 25 mph. The surface will meet the following conditions:
 - a. Substantially free of chuckholes, wheel ruts, or washboard corrugations. Surface is drained and retains its cross slope or crown.
 - b. Berms of loose surfacing caused by use do not generally exist, except on horizontal curves berms up to 2 inches in depth may be present.
4. **Maintenance Level V** - the highest degree of consideration is given to user comfort and convenience. Roads are commonly paved or continually dust controlled for travel at speeds of nominally 35 mph. Generally, the surface will meet the following conditions:
 - a. **Level IV plus:** Surface is consolidated except for limited periods immediately preceding maintenance performance.
 - b. Berms are not acceptable.

T-803 - SNOW REMOVAL (05/07)**803.01 Description**

This Section provides for removal of snow from roads to facilitate logging operations and safe use.

803.02 Maintenance Requirements

- (1) Erect signs required by the Sign Plan in the SUPPLEMENTAL SPECIFICATIONS.
- (2) Perform work in a manner to preserve and protect roads and appurtenances, and prevent erosion damage to roads, streams, and other Forest values.
- (3) Do not undercut banks. Do not blade gravel or other surfacing material off the road.
- (4) Keep roadbed drainage ditches, drain dips, and culverts functional when needed during operations and upon completion of operations.
- (5) Control snow removal to identify the usable traveled way having roadbed support. Reshape over-width plowing as necessary to define the usable width.
- (6) Space, construct, and maintain drainage holes in the dike of snow or berm caused by snow removal operations. Place drain holes to obtain surface drainage without discharging on erodible fills.
- (7) Close roads to wheeled vehicles at times and in the manner specified in C(T)5.12 or the Road Rules document.
- (8) Upon seasonal completion of Purchaser's Operations, effectively block the road by a snow barricade, unless otherwise approved by the Contracting Officer.
- (9) Remove snow for either public access or project use as established in the SUPPLEMENTAL SPECIFICATIONS and meet the following requirements:
 - (a) Removal for Public Access (Method JU) - Remove snow from all of the traveled way, including turnouts, for safe and efficient use for both timber transportation and the public. Remove intruding windfalls, debris, or slough and slide material for the full width of the traveled way and deposit out of drainage's at locations designated by the Contracting Officer.
 - (b) Removal for Project Use (Method TS) - Remove snow from all or part of the traveled way, including sufficient turnouts for safe and efficient use for timber transportation and to protect the road. Remove intruding windfalls, debris or slough and slide material and dispose of only as necessary to provide passage for timber transportation. Removed materials may be deposited off the traveled way or outside the traveled way at locations designated by the Contracting Officer.
- (10) When directed by the Contracting Officer, replace in kind, within sixty (60) days after the start of Normal Operating Season, any surfacing material which has been bladed off the road, unless otherwise agreed. Contracting Officer will notify Purchaser in writing as to the cubic yard equivalent of bladed off material by the start of the normal operating season.

803.03 Equipment

Purchaser may use any type of equipment to remove snow, providing:

- a. Type or use of equipment is not restricted in C(T)5.12 or Road Rules document.
- b. Equipment is of the size and type commonly used to remove snow and will not cause damage to the road.
- c. The use of plows or dozers to remove snow requires written approval by the Contracting Officer. Equip plows or dozers with shoes or runners to keep the dozer blade a minimum of 2 inches above the road surface unless otherwise approved by the Contractor Officer.

803.04 Ice Control

Ice control may be performed by Purchaser when approved by the Contracting Officer in writing. Such approval will include ice control materials, application rates, and any specific requirements of use.

T-811 BLADING (10/07)

811.01 Description -

This work consists of surface blading the traveled way to a condition that facilitates traffic and Provides proper drainage. Blading includes shaping the crown or slope of travel traveled way, berms, and drainage dips in accordance with this specification. Compaction is required when shown on the ROAD LISTING.

811.02 Maintenance Requirements

A. Timing- Perform surface blading during the contract period as often as needed to provide conditions stated for the maintenance level of the road.

B. General -

1. Blade and shape the existing traveled way and shoulders, including turnouts , to produce a surface which is uniform, consistent to grade, and crowned or cross-sloped as indicated by the character of the existing surface, unless otherwise shown in the ROAD LISTING, to at least 13 mm (½ inch) per .305 meter (1 foot) of width, but not more than 19 mm (¾ inch) per .305 meter (1 foot) of width. Thoroughly loosen surfacing material to no less than 50 mm (2 inches) depth or the depth of potholes or corrugations. Scarification to facilitate cutting to the full depth of potholes or corrugations may be elected, but will be considered incidental to blading. Do not scarify deep enough to cause contamination of the surfacing.

2. Apply water during blading when sufficient moisture is not present to prevent segregation. Supply, haul, and apply water in accordance with Section T-891.

3. Shape existing native rock or aggregate surfaced drainage dips to divert surface runoff to existing outlet devices, ditches, or discharge locations.

4. Establish a blading pattern which provides a uniform driving surface, retains the surfacing on the roadbed, and provides a thorough mixing of the materials within the completed surface width. Upon final blading, no disturbed rock shall protrude more than 50 mm (2 inches) above the adjacent surface unless otherwise provided in the contract. Remove and place outside the roadbed material not meeting this dimension so as not to obstruct drainageways or structures. This material may be scattered off the roadbed if there is free drainage.

Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

| |
|---|
| Invasive Species of Concern Prevention Practices |
| Refer to Contract Provision C6.6# |

C. Routine Blading -

1. Conform to the dimensions SHOWN ON THE DRAWINGS or designated in the SUPPLEMENTAL SPECIFICATIONS upon completion of blading.

2. Shape roadbed width in excess of the dimensions shown only as needed to provide drainage away from the traveled way. Do not remove established grasses and other vegetation from the excess width except as incidental to providing drainage or unless otherwise provided in the contract.

D. Compaction -

Roads requiring compaction will be included in the ROAD LISTING. Unless Compaction Method B is designated in the ROAD LISTING, all traveled ways requiring compaction may be compacted by Method A. Compaction shall commence immediately following blading.

Compaction methods are:

Compaction Method A: By breaking track while operating equipment on the traveled way.

Compaction Method B: 7--9 metric ton (7-10 ton) pneumatic, steel, or equivalent vibratory roller, operated to cover the full width two (2) times.

E. Undercutting -

Undercutting roadway back slope is not permitted.

F. Intersections

1. At intersections, blade the roadbeds of side roads which are not closed or restricted from vehicular use to ensure smooth transitions.
2. Signing, cross ditching in the road surface (traveled way), earth berms, or other devices placed to discourage or eliminate use by passenger cars, are field evidence of road closure or restriction. Roads listed for work under Sections T-835, T-836, T-838, or T-839 are considered restricted.
3. Side roads listed for work under this Section are not restricted.

G. Cleaning of Structures - Do not allow materials resulting from work under this Section to remain on or in structures, such as bridges, culverts, cattle guards, or drainage dips.

H. Berms - Maintain existing berms to the condition of adjacent segments. Do not create new berms (windrows).

I. Smooth Blading - Smooth blading may be used as an interim measure to remove loose surfacing material from the wheel paths, and store removed materials in a recoverable windrow, until blade processing as described in this section is feasible. Watering will not be required for smooth blading. Accomplish smooth blading without distorting the existing cross-slope or crown of the traveled way.

Move and store loose surfacing materials on the high side of super-elevated curves and sections with uniform inslope or outslope. In crowned sections, store the material on either or both sides as elected. Windrow and place stored materials to provide not less than 3.6 meters (12 feet) of smooth traveled way on one-lane segments, or 6 meters (20 feet) of smooth traveledway on two-lane segments, or segments with turnouts. Cut holes through windrows, which may collect water on the road, for drainage at least every 150 meters (500 feet).

T-812 - DUST ABATEMENT (05/07)**812.01 Description**

This work consists of applying dust palliatives on roads shown in the Road Listing.

812.02 Materials

The dust palliative materials are shown in the Road Listing, unless shown as Optional for Purchaser's election. If Optional is shown then the Purchaser may use any of the products listed below. Dust palliative materials shall meet the following requirements:

A. Water (H2O) will be obtained from sources SHOWN ON THE DRAWINGS or listed in the SUPPLEMENTAL SPECIFICATIONS to Section T-891 Water Supply, unless otherwise approved by the Contracting Officer.

B. Lignin Sulfonate (LIG S) Provide certification that the material meets the requirements of Subsection 725.20 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03)" and the Forest Service Supplemental Specification 725.20.

C. Magnesium Chloride (MG CL2) Provide certification that that the material meets the requirements of Subsection 725.02 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) " and the Forest Service Supplemental Specification 725.02.

D. Calcium Chloride Brine (CA CL2B). Provide certification that the material meets the requirements of Subsection 725.02 of the " Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) " and the Forest Service Supplemental Specification 725.02..

E. Calcium Chloride Flake (CA CL2F). Provide certification that that the material meets the requirements of Subsection 725.02 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) " and the Forest Service Supplemental Specification 725.02..

F. Bituminous dust palliatives. Manufacture materials specifically for dust abatement purposes which conform to the requirements of Section T-892 for each listed road in the Road Listing.

812.03 Methods

As shown in the SUPPLEMENTAL SPECIFICATIONS, Purchaser may utilize a variety of methods to decrease or eliminate the need for dust abatement.

812.04 Equipment

A. Design, equip, and operate application equipment for spreading dust palliatives so that the material is uniformly applied at the rate and traveled way widths shown in the Road Listing.

B. For bituminous palliatives provide equipment that heats and applies the bituminous material. Provide a bituminous distributor that is self-powered and mounted on pneumatic tires and equipped with a pump and circulating spray bar, a tachometer, pressure gauges, accurate volume measuring devices such as visual volume dial or gauge calibrated to the tank, and a thermometer. Provide equipment which is a standard commercial type of proven performance.

C. Accomplish dilution of dust palliatives within the application vehicle with the water source protected from contamination. Circulate the resulting mixture at least five (5) minutes to ensure uniform mixing prior to application.

812.05 Maintenance Requirements

A. Limit water applications to abatement for hauling vehicles and provide at a frequency and rate which controls dust such that vehicle tail lights and turn signals remain visible. Vary rates of application as needed but remain low enough to avoid forming rivulets. Accomplish the abatement by sufficient frequency of application without saturating and softening the traveled way. Compacted or glazed road surface or wheel tracks may be loosened as needed for water penetration.

B. Apply all other dust palliatives at the rates and times agreeable to the Contracting Officer. The Road Listing shows the expected average application rate and may be varied to meet field conditions. Lignin Sulfonate, Magnesium Chloride, and Calcium Chloride Brine are listed as liters per square meter of the undiluted product at fifty (50), thirty-three (33), and thirty-eight (38) percent respectively. Calcium Chloride Flake is listed in Kilograms per square meter at seventy-seven (77) percent concentration.

C. Apply bituminous dust palliatives only when the surface to be treated contains sufficient moisture to obtain uniform distribution of the dust palliative unless noted differently in the SUPPLEMENTAL SPECIFICATIONS.

D. Prior to initial application, when needed, the road will be bladed and shaped under Section T-811, Blading.

E. Required subsequent applications may be applied to the existing road surface without blading.

F. Dust palliatives will not be applied in a manner that spatters or mars adjacent structures or trees, or placed on or across cattleguards or bridges. Discharge dust abatement material only on roads approved by the Contracting Officer.

T-813 SURFACING (10/07)

813.01 Description

This work consists of placing surface aggregate as DESIGNATED ON THE GROUND, or as ordered by the Contracting Officer. It includes preparing the area, furnishing, hauling, and placing all necessary materials and other work necessary to blend with the adjacent road cross section.

813.02 Materials

- A. Materials will be Government-furnished when stated in the supplemental specifications.
- B. Materials furnished by the Purchaser shall conform to the gradation and quality requirements of Section 703 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects FP-03 U.S. Customary Units" and FS supplements to the FP-03.
- C. All materials transported onto National Forest System land shall be free of invasive species of concern. Written documentation of methods used to determine the invasive species of concern free status of any and all materials furnished by the Purchaser shall be submitted to the Contracting Officer before transport of any materials onto National Forest System land.

The Contracting Officer shall have 5 days, excluding weekends and Federal holidays, to review the methods and inspect the materials after the required written documentation is provided by the Purchaser. After satisfactory review and inspection or after such 5 day period, the Purchaser may transport the material onto National Forest System land.

Material or methods appropriate for establishing invasive species of concern free status for the particular invasive species of concern are listed below.

Invasive Species of Concern and Acceptable Methods specific to this project:

| Invasive Species of Concern | Acceptable Methods |
|---|--|
| <i>Centaurea biebersteinii</i> (spotted knapweed) <i>Centaurea diffusa</i> (diffuse knapweed) <i>Centaurea pratensis</i> (meadow knapweed) <i>Cirsium arvense</i> (canada thistle) <i>Cirsium vulgare</i> (bull thistle) <i>Cytisus scoparius</i> (scotch broom) <i>Hypericum perforatum</i> (st. john's-wort) <i>Senecio jacobaea</i> (tansy ragweed) | Documentation of "weed-free" certification of material source. |

813.03 Maintenance Requirements

- A. Thoroughly loosen the area to be surfaced to a minimum depth of 1 inch prior to placement of aggregate.
- B. Mixing and Placing

When scheduled coincidentally with work under Section T-811, and included in the SUPPLEMENTAL SPECIFICATIONS, mix surfacing and existing aggregate with water until a uniform mixture is obtained prior to final shaping and compaction.

Otherwise, spread the material on the prepared area in layers no more than 4 inches in depth. When more than one (1) layer is required, shape and compact each layer before the succeeding layer is placed. Upon completion, the surfacing shall reasonably conform to the adjacent cross section and provide smooth transitions in the road profile.

- C. Compaction Methods

Compaction Method A: Breaking track while operating equipment on the traveled way.

Compaction Method B: 7-10 ton pneumatic, steel, or equivalent vibratory roller, operated to cover the full width two (2) times.

Either Method A or B may be used unless Method B is designated in the ROAD LISTING.

T-831 DITCH MAINTENANCE (10/07)

831.01 Description

This Section provides for routine maintenance of various types of ditches to provide a waterway which is unobstructed, as shown on the ROAD LISTING or DESIGNATED ON THE GROUND.

831.02 Maintenance Requirements

- A. Maintain ditches by removing rock, soil, wood, and other materials. Maintained ditches shall function to meet the intent of the original design.
- B. Undercutting backslopes during removal operations is not permitted.
- C. Suitable material up to 4 inches in greatest dimension removed from the ditches may be blended into existing native road surface and shoulder or placed in designated berm.
- D. Do not blend material from ditch cleaning operations into aggregate surfaced roads. Do not blade material across aggregate or bituminous surfaced roads, unless approved in writing by the Contracting Officer.
- E. Haul material in excess of 831.02 D or subject to 831.02 E to a designated waste area under Section T-832. Remove excess materials temporarily stored on the ditch slope or edge of the shoulder daily.
- F. Remove limbs and wood chunks in excess of 12 inches in length or 3 inches in diameter from ditches and place outside the roadway.
- G. Clean paved surfaces of all materials resulting from ditch maintenance work.
- H. Shape lead-off ditches to drain away from the traveled way.
- I. Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

| |
|---|
| Invasive Species of Concern Prevention Practices |
| Refer to Contract Provision C6.6# |

T-832 REMOVE AND END HAUL MATERIALS (05/07)**832.01 Description**

Work consists of loading, hauling, and placing of slide, slough, or excess materials such as rock, soil, vegetation, and other materials to designated disposal sites.

832.02 Maintenance Requirements

A. Remove, end haul, and dispose of excess materials generated by work under other Sections of this contract.

B. Remove the slide and slough materials in the area extending approximately 6 feet vertically above the road surface and not more than 3 feet down slope from the roadbed. Dispose of material at designated sites as SHOWN ON THE DRAWINGS, identified in SUPPLEMENTAL SPECIFICATIONS, or as ordered by the Contracting Officer.

Reshape the slope which generated the slide material as nearly as practical to its original condition by equipment operating from road surface. Reshaping of roadside ditches in slide area shall be in accordance with Section T-831.

C. When approved by the Contracting Officer, fill slumps by compacting selected materials into roadway depressions. Compaction is by Method 2.

D. Place all materials in disposal sites as specified in the SUPPLEMENTAL SPECIFICATIONS, as SHOWN ON THE DRAWINGS, or as ordered by the Contracting Officer.

1. Method 1 - Side Casting and End Dumping. Material may be placed by side casting and end dumping. Where materials include large rocks, provide a solid fill by working smaller pieces and fines into voids. Shape the finished surfaces to drain.

2. Method 2 Layer Placement - Step or roughen surfaces on which materials are to be placed prior to placing any material. Place materials in approximately horizontal layers no more than 12 inches thick. Compact each layer by operating hauling and spreading equipment over the full width of each layer.

E. Repair any damage to existing aggregate or pavement surfaces.

T-834 DRAINAGE STRUCTURE MAINTENANCE (10/07)

834.01 Description

This work consists of cleaning and reconditioning culverts and other drainage structures.

834.02 Maintenance Requirements

A. Clean drainage structures, inlet structures, culverts, catch basins, and outlet channels specified in the SUPPLEMENTAL SPECIFICATIONS. Clean catch basins by removing the material within the area SHOWN ON THE DRAWINGS.

B. Clean the transition from the ditch line to the catch basin a distance of 10 feet from the catch basin. Clean outlet channels and lead-off ditches a distance of 6 feet. Remove and place debris and vegetation so as to not enter the channel or ditch, or obstruct traffic. Haul debris and vegetation to a designated disposal area in accordance with Section T-832.

C. Hydraulic flushing of drainage structures is not allowed unless provided for in the SUPPLEMENTAL SPECIFICATIONS.

D. Cleaning and reconditioning are limited to the first 3 feet of inlet and outlet, determined along the top of the structure. Recondition culvert inlet and outlet by field methods such as jacking out or cutting away damaged metal which obstructs flow. Treat cut edges with a zinc rich coating, in accordance with AASHTO M 36M and ASTM A 849.

E. Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

| Invasive Species of Concern Prevention Practices |
|--|
| Refer to Contract Provision C6.6# |

T-835 ROADWAY DRAINAGE MAINTENANCE (05/07)**835.01 Description**

This work consists of providing post haul drainage on roads.

835.02 Maintenance Requirements**A. Drainage**

1. Upon completion of work, shape the roadway to provide for the removal of surface water. The roadway need not be passable to vehicles. Repair and reinstall water bars, barriers or berms existing prior to the Purchaser's operation. Areas where water is ponded by existing centerline profile sags in through cuts may be left untreated.
2. Continuous blade shaping of the roadbed is not required under this specification.
3. Work to be done at staked locations shall be as indicated on the stake and/or stated in SUPPLEMENTAL SPECIFICATIONS:
4. Any of the following methods are acceptable for use at eroded or rutted locations:
 - Method A:** Outsloping the roadbed at not less than ¼ inch per yard of width.
 - Method B:** Insloping the roadbed at not less than ¼ inch per yard of width.
 - Method C:** Water bar roadbed at locations staked on the ground and construct as SHOWN ON THE DRAWINGS or as included in SUPPLEMENTAL SPECIFICATIONS.
5. Drainage structures located in through fills and natural watercourses shall be fully functional without obstructions, including inlet and outlet channel within 20 feet of the structure.
6. Either clean culverts and other fabricated structures to provide drainage from road ditches and make the ditch functional or provide water bar(s) across the roadbed. Removed structures shall become Purchaser's property to be removed from National Forest System land. Remove and replace any purchaser-installed temporary drainage structures with a water bar.

B. Slides, Slumps and Slough

1. Slides and slough may be left in place, provided they do not potentially impound water or divert water from watercourses. As necessary, reshape the various surfaces to provide drainage.
2. Provide drainage to effectively decrease or eliminate the entry of surface water into slides, slumps, and roadbed surface cracks. Place berms, waterbars or ditches as needed to intercept and remove runoff water from the roadbed. Surface seal cracks by covering over with native soil materials to prevent additional water entry and compact with equipment tires.

C. Entrance Devices

Upon completion of work, replace entrance devices to effectively eliminate access by motorized vehicles having four (4) wheels and a width in excess of 50 inches.

D. Seeding

Seed and fertilize all disturbed areas in accordance with requirements set forth in Section T-841.

T-836 - MAINTENANCE FOR LIMITED USE (05/07)**836.01 Description**

This work consists of making limited use roads passable for joint use by Purchaser and high clearance vehicles, and providing drainage from the traveled way and roadbed.

836.02 Maintenance Requirements**A. Traveled Way**

Purchaser may smooth or fill existing cross ditches and water bars and by agreement modify existing road junctions to enable vehicle access. Prior to beginning haul and resumption of haul after an extended stoppage:

1. Remove brush, fallen trees, rocks, and other debris from traveled way, including turnouts, turnarounds, and other locations that interfere with needed maintenance as follows:
 - a. No object extending over 4 inches above the road surface shall remain within the 12 feet usable traveled way and 10 feet turnout widths. Center the usable width on the roadbed or position away from the fill slope.
 - b. Cut and remove standing or down trees, logs, brush, and limbs from within the area described in 1 a. above. Remove encroaching limbs to a height of 14 feet above the traveled way surface. Scatter material not meeting utilization standards outside and below the roadbed on the fill side. Limb and remove timber which meets utilization standards or deck at agreed locations.
 - c. Place all removed materials away from drainages.
 - d. During use, maintain drainage structures, including dips, ditches and culverts in a useable condition.
2. Clean and recondition drainage facilities in accordance with: Section T-831 and T-834.

B. Slough and Slides

1. Slough and slides may be left in place, provided surface drainage is provided and at least 12 feet of width is available for vehicle passage.
2. Purchaser may reposition or ramp over slides and slough when the traveled way width is less than 12 feet providing the material is capable of supporting vehicles. Limit out slope to no more than six percent.

3. Reposition slough or slide materials on the roadbed which are not capable of supporting a vehicle to provide the 12 foot width. When directed by the Contracting Officer, slough or slide material will be removed under Section T-832.

C. Slumps and Washouts

1. Drain the roadbed immediately upgrade of slumps and longitudinal cracks to prevent water from entering slump area.
 2. Slumps and longitudinal cracks at the edge of the roadbed shall not be considered a part of the usable width. Usable width may be reduced to 10 feet in the area of the slump.
3. Unless the Contractor Officer agrees to material being placed on slumps, ramp the slumps on both ends into undisturbed roadbed to provide at least 10 feet usable width. Use removed materials to guide vehicles to the ramp location or to aid in draining the area.
4. Washouts may be filled with suitable material.

D. Post haul

At the end of hauling or prior to entering into seasonal shutdowns or a period of extended inactivity:

1. Shape the traveled way and disturbed roadbed to provide functional drainage.
2. Reinstall removed cross ditches and water bars and provide any additional drainage structures necessary to offset changes caused through use and maintenance.
3. Leave roads useable for high clearance vehicles. Remove or reshape purchaser modifications at road junctions to leave the entrance as it was before use, or as agreed at the time of improvement.

T-838 MAINTENANCE FOR HIGH CLEARANCE VEHICLE USE (05/07)**838.01 Description**

This work consists of making limited use roads passable for project use by Purchaser and providing drainage from the traveled way and roadbed.

838.02 Maintenance Requirements**A. Traveled Way**

Purchaser may smooth or fill existing cross ditches and water bars and as approved by the Contracting Officer modify existing road junctions to enable vehicle access. The Purchaser may perform the following work prior to beginning haul and resumption of haul after an extended stoppage:

1. Remove brush, fallen trees, rocks, and other debris from traveled way, including turnouts, turnarounds, and other locations that interfere with needed maintenance as follows:
 - a. No object extending over 4 inches above the road surface shall remain within the 12 feet usable traveled way. Center the usable width on the roadbed or position away from the fill slope.
 - b. Cut and remove standing or down trees, logs, brush, and limbs from within the area described in 1(a). Remove encroaching limbs to a height of 14 feet above the traveled way surface. Scatter material not meeting utilization standards outside and below the roadbed on the fill side. Limb and remove timber that meets utilization standards or deck at locations approved by the Contracting Officer.
 - c. Place all removed materials away from drainages.
 - d. During use, maintain drainage structures including dips, ditches and culverts in a usable condition.
2. Clean and recondition drainage facilities in accordance with Section T-831 and T-834.

B. Slough and Slides

1. Slough and slides may be left in place, provided surface drainage is provided and at least 12 feet of width is available for vehicle passage.
2. Purchaser may reposition or ramp over slides and slough when the traveled way width is less than 12 feet providing the material is capable of supporting vehicles. Limit out slope to no more than six percent.

3. Reposition slough or slide materials, which are not capable of supporting a vehicle, on the roadbed to provide the 12 feet width. When directed by the Contracting Officer, slough or slide material will be removed under Section T-832.

C. Slumps and Washouts

1. Drain the roadbed immediately upgrade of slumps and longitudinal cracks to prevent water from entering slump area.
2. Slumps and longitudinal cracks at the edge of the roadbed shall not be considered a part of the usable width. Usable width may be reduced to 10 feet in the area of the slump.
3. Unless the Contracting Officer approves material being placed on slumps, ramp the slumps on both ends into undisturbed roadbed to provide at least 10 feet usable width. Use removed materials to guide vehicles to the ramp location or to aid in draining the area.
4. Washouts may be filled with suitable material.

D. Post haul

At the end of hauling or prior to entering into seasonal shutdowns or a period of extended inactivity:

1. Shape the traveled way and disturbed roadbed to provide functional drainage.
2. Reinstall removed cross ditches and water bars and provide any additional drainage structures necessary to offset changes caused through use and maintenance.
3. Leave roads useable for high clearance vehicles. Remove or reshape purchaser modifications at road junctions to leave the entrance as it was before use, or as agreed at the time of improvement.

T-839 MAINTENANCE FOR PROJECT USE (05/07)**839.01 Description**

Work consists of providing minimum access required for Purchaser's Operations and associated Forest Service contract administration and preventing unacceptable resource or road damage.

839.02 Maintenance Requirements

- A.** Purchaser is authorized to perform the following maintenance to provide vehicle passage and drainage:
1. Removing log, earth, and rock barriers and/or improving existing road junctions to enable vehicle access as mutually agreed.
 2. Smoothing or filling existing cross ditches and water bars.
 3. Installing Purchaser-furnished culverts or other temporary drainage structures for shallow stream crossings as approved by the Contracting Officer.
 4. Removing brush, fallen trees, rocks, and other materials from the traveled way and other locations that interfere with needed maintenance:
 - a. Place all removed materials away from drainages.
 - b. Limb and remove timber which meets utilization standards or deck at locations approved by the Contracting Officer. Scatter other woody materials, including limbs, off of and below the roadbed without creating concentrations.
 5. Clean and recondition drainage structures in accordance with Section T-831 and Section T-834.
 6. Reposition or ramp over slough and slides to provide adequate width of traveled way material.
 7. Provide traveled way drainage above slumps and seal cracks in slump area. Ramp the slumps on both ends into undisturbed roadbed to provide usable width unless otherwise ordered by the Contracting Officer.
- B.** During use, the traveled way shall not channel water along the road. Prior to seasonal periods of anticipated rains and runoff, perform the following work:
1. Shape the traveled way and roadbed to drain.
 2. Reinstall removed cross ditches and water bars and provide any additional drainage structures necessary to offset changes through use and maintenance.
 3. Perform work outlined in 839.02 A (5), (6), and (7).
 4. During periods of non use, replace original barrier or provide and maintain standard MUTCD, Type 3, barricades unless alternate type barriers are approved by the Contracting Officer.

839.03 Post Haul Requirements

- A.** Upon completion of project use perform such work as needed to reasonably conform to the character of the existing road prior to Purchaser's maintenance for project use, unless otherwise provided in the SUPPLEMENTAL SPECIFICATIONS or the Road Listing. Work shall be in addition to requirements of 839.02 B and in accordance with 839.03 B and C.
- B.** Roads designated in the Road Listing to be blocked shall conform to the requirements of Section T-835. Unless otherwise approved by the Contracting Officer, remove Purchaser-installed temporary structures from National Forest System land. Associated commercially-obtained materials shall remain the property of the Purchaser.
- C.** Remove or reshape Purchaser improvements at road junctions, as approved by the Contracting Officer at the time of improvement.

T-841 VEGETATION ESTABLISHMENT (5/07)

841.01 Description

This work consists of applying seed, fertilizer, mulch, and planting containerized or bare root plant stock singularly or in specified combinations to roadways and disposal areas. Work area may be limited to designated portions of the roadway and roadside or include treatment of the entire area bounded by the outer limits of the roadsides.

841.02 Materials and Application Rates

Provide the following listed materials:

A. Fertilizer: Fertilizer shall be a standard commercial grade and provide the minimum percentage of available nutrients designated.

| | | | |
|-------------------|---------------------|--------------------|-----------------|
| <u>% Nitrogen</u> | <u>% Phosphorus</u> | <u>% Potassium</u> | <u>% Sulfur</u> |
|-------------------|---------------------|--------------------|-----------------|

Refer to Contract Provision C6.6#

Furnish fertilizer in sealed containers with the composition, weight, and guaranteed analysis of contents clearly marked. Apply at the rate of 300 pounds per acre.

B. Seed:

1. This work consists of furnishing and placing required seed mix on all areas disturbed under this contract and on any other areas specified.

2. Apply the seed in the following amounts and mixtures:

| | |
|--------------------------------------|--------------------------------------|
| <u>Species</u> | <u>Application Rate</u> |
| Refer to Contract Provision C6.6# | Refer to Contract Provision C6.6# |

3. Use hand-operated seeding devices, or other devices approved by the Contracting Officer, to apply seed.

4. Furnish weed-free seed, with additional requirement that no seed containing any prohibited noxious weed seed, or any restricted noxious weed seed in excess of current state standards, for those weeds as defined in the current publication commonly referred to as the "All States Noxious Weed List" while the standards for prohibited and restricted noxious weeds are to be found in the appropriate state law or regulations.

Furnish seed separately or in mixture in standard containers with (1) seed name; (2) lot number; (3) net weight; (4) percentages of purity and of germination (in case of legumes, percentage of germination to include hard seed), and (5) percentage of maximum weed seed content clearly marked for each kind of seed; (6) certification that the seed lot meets applicable State and Federal laws with regard to prohibited and restricted noxious weeds clearly marked for each kind of seed. Furnish the Contracting Officer duplicate signed copies of a certificate signed by a Registered Seed Technologist or Seed Analyst (certified through either the Association of Official Seed Analysts or the Society of Commercial Seed Technologists) certifying that each lot of seed has been tested in accordance with the Association of Official Seed Analysts standards within 12 months prior to the date of application. This certification shall include (1) name and address of laboratory, (2) date of test, (3) lot number for each kind of seed, (4) name of seed, (5) percentage of germination, (6) percentage of purity, (7) percentage of weed content, (8) certification that the seed lot meets applicable State and Federal laws with regard to prohibited and restricted noxious weeds, and (9) in the case of a mixture, the proportions of each kind of seed. Legume seed shall be inoculated with approved cultures in accordance with the instructions of the manufacturer. No seed may be applied without prior written approval from the Contracting Officer.

- C. **Mulch:** Apply mulch materials as follows:

| <u>Mulch Type</u> | <u>Application Rate</u> |
|--------------------------------------|--------------------------------------|
| Refer to Contract Provision C6.6# | Refer to Contract Provision C6.6# |

- D. **Plant Stock:** Furnish the following listed plant materials:

| <u>Stock</u> | <u>Size</u> | <u>Bare Root</u> | <u>Containerized</u> |
|--------------|-------------|------------------|----------------------|
| N/A | | | |

841.03 Schedules and Applications

A. Schedule

- Seeding may not be done until all other ground-disturbing work on the road has been completed and accepted. Complete seeding as soon as other ground-disturbing work is accepted, unless a specific seeding season is listed below.
Seeding season: April 15 to September 15.
- Do not apply the treatment when the ground is frozen or excessively wet. Terminate application during periods when there is too much wind to allow consistent treatment rates and control of the treatment area to the designated limits.

B. Roadside and Slope Treatment

- Roadsides will not require advance preparation unless required in the SUPPLEMENTAL SPECIFICATIONS or as SHOWN ON THE DRAWINGS.
- Apply the designated treatment by hand operated machine. When both roadbed (under 841.03C) and slopes are shown in the SUPPLEMENTAL SPECIFICATIONS for treatment, application may be done at the same time.
- The Contractor will not be required to operate self-propelled equipment beyond the defined roadbed. Do not apply treatment materials to the foreslope of ditches unless roadbed treatment (841.03C) is also required.

C. Roadbed Treatment

- Scarify portions of the roadbed not previously disturbed and left loose under Section T-835 to a minimum depth of 4 inches unless bedrock is encountered at a lesser depth. The maximum distance between furrows formed by scarification is 12 inches.
- Treat barrier mounds placed under Section T-835 while in a roughened condition.

D. Planting

- Plant designated woody plant materials at the staked locations or designated spacings.
- Place containerized plant stock in an appropriately sized hole formed by a dibble or other device to place the roots at the proper depth.
- Place bare root plant stock in a slotted cut formed by a mattocks, pulaski, or other edged tool. Place the crown at ground level. Do not bend or break the roots.
- Compress the area adjacent to the hole by foot or special tool to form a depression up and down slope from the stem and force the soil against the container or roots with no air voids.
- Hold the plantings firmly in place by the soil. When checked by pulling upward on the top ½ inch of the plant stem, the planting shall either break at the hold point or the area compressed against the roots show evidence of movement. Remove and replace with fresh stock plantings that are not held firmly by the soil.

841.04 Government Provided Materials

The Government will provide the following listed materials. At least ten (10) calendar days notice must be given to the Contracting Officer prior to actual date material will be picked up.

Materials will be provided at: **Refer to Contract Provision C6.6#**

T-842 CUTTING ROADWAY VEGETATION (10/07)**842.01 Description**

This work consists of cutting all vegetative growth, including trees and other vegetation less than 4 inches in diameter measured 6 inches above the ground, on roadway surfaces and roadsides.

842.02 Maintenance Requirements**A. General**

1. Cut brush, trees, and other vegetation within each area treated to a maximum height of 6 inches above the ground surface or obstruction such as rocks or existing stumps. When work is performed under this Section, remove all limbs which extend into the treated area, or over the roadbed, to a height of 14 feet above the traveled way surface elevation.
2. Items to remain will be DESIGNATED ON THE GROUND.
3. Work may be performed either by hand or mechanically unless specifically shown in the Road Listing. Self-propelled equipment is not allowed on cut and fill slopes or in ditches.
4. Correct damage to trunks of standing trees caused by Purchaser's operation either by treatment with a commercial nursery sealer or by removing the tree as directed by the Contracting Officer.
5. Limb trees within the cutting limits which are over 4 inches -measured at 6 inches above the ground in lieu of cutting.
6. When trees are limbed, cut limbs within 4 inches of the trunk.

B. Cutting Side Vegetation

1. Show the width of vegetation to be removed in the Road Listing.
2. Unless otherwise included in the SUPPLEMENTAL SPECIFICATIONS or DESIGNATED ON THE GROUND:
 - a. Commence work at the edge of the traveled way and proceed away from the road centerline.
 - b. Roads without a defined traveled way: The starting point for cutting will be marked on the ground or defined in the SUPPLEMENTAL SPECIFICATIONS.
3. The points for establishing cutting limits are as follows:
 - a. Fill and daylighted (wide roadbed) section cutting commences at the edge of the traveled way and proceeds away from the road center line.
 - b. Drainage ditched section cutting commences at the bottom of the existing ditch and proceeds away from the road center line. Cutting on ditch foreslopes is not required.
 - c. Unditched cut section cutting commences at the intersection of the cutbank and the roadbed and proceeds away from center line.
4. Provide transitions between differing increments of cutting width. Accomplish transitions in a taper length of not less than 50 feet nor more than 70 feet.

C. Debris

1. Materials resulting from the cutting operation in excess of 12 inches in length or 3 inches in diameter is not allowed to remain on roadway slopes within the treated area, in ditches, or within water courses.
2. Remove limbs and chunks in excess of 3 inches in any dimension from the traveled way and shoulders.
3. Materials may be scattered down slope from the roadbed, outside of the work area and drainages unless otherwise listed in D. Invasive Species of Concern.

D. Invasive Species of Concern

Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

| Invasive Species of Concern Prevention Practices |
|--|
| Refer to Contract Provision C6.6# |

T-851 LOGGING OUT (5/07)

851.01 Description

This work consists of removal of fallen trees and snags which encroach into the roadway or the 3 feet of roadside abutting the roadway on the cut side.

851.02 Maintenance Requirements

- A. Limb and remove timber which meets Utilization Standards, or deck at locations designated by the Contracting Officer.
- B. Limb other material cut into lengths for handling. Deck outside ditches and drainages, off the traveled way and turnouts or at staked locations. The clearing width is to the edge of the roadway for public use roads, except limited use roads. The clearing width for limited use roads is shown in the specifications.
- C. Notwithstanding B(T)2.3, blowdown timber outside Sale Area required to be removed, which meets Utilization Standards in A(T)2, when designated by the Contracting Officer is Included Timber subject to requirements of B(T)2.2.
- D. Do not leave woody debris and slash in excess of 12 inches in length or 3 inches in diameter, or concentrations which may plug ditches or culverts, in ditches, drainage channels, or on backslopes, traveled way, shoulders, or turnouts.

T-854 - TREATMENT AND DISPOSAL OF DANGER TREES (5/07)

854.01 Description

This work consists of felling and disposal of designated live or dead danger trees sufficiently tall to reach roads used by the Purchaser. Any removal of logs is subject to prior agreement between the Contractor Officer and the Purchaser.

854.02 Requirements

A. Designation of danger trees.

Danger trees to be felled will be designated in advance by the Contracting Officer. Trees to be removed will be Marked.

B. Falling, bucking and treatment for disposal.

Use controlled felling to ensure the direction of fall and prevent damage to property, structures, roadway, residual trees, and traffic. Stump heights, measured on the side adjacent to the highest ground, must not exceed 12 inches or 1/3 of the stump diameter, whichever is greater. Higher stump heights are permitted when necessary for safety.

Felled snags and trees, which are not Marked for removal, will be left in a stable condition such that they will not roll or slide. Position logs away from standing trees so they will not roll, are not on top of one another, and are located out of roadway and drainage structures.

Fell, limb and, remove trees, which are Marked for removal, that equal or exceed the utilization standards as listed in the Timber Sale contract or SUPPLEMENTAT SPECIFICATIONS. Dispose of merchantable timber designated for removal in accordance with B/BT2.32 Construction Clearing, of the Timber Sale Contract, or as described in SUPPLEMENTAL SPECIFICATIONS.

C. Slash treatment.

Within the roadway, remove limbs, chunks, and debris in excess of 12 inches in length and 3 inches in diameter, and concentrations that may plug ditches or culverts, and water courses.

Dispose of slash by scattering outside the roadway limits without damaging trees, or improvements.

Large accumulations of slash may be ordered hauled under T-832.

T-891 WATER SUPPLY AND WATERING (5/07)

891.01 Description

This work consists of providing facilities to furnish an adequate water supply, hauling and applying water.

891.02 Materials

If the Purchaser elects to provide water from other than designated sources, the Purchaser is responsible to obtain the right to use the water, including any cost for royalties involved. Suitable and adequate water sources available for Purchaser's use under this contract are designated as follows:

| <u>Map Key No.</u> | <u>Location Road</u> | <u>Location Milepost</u> | <u>Use Restrictions</u> |
|------------------------|--------------------------|----------------------------------|---|
| N/A | NFSR 4680 | at crossing with Lemiti Creek | Drafting of water shall not result in reduction of stream flow by greater than 50%. Fish Screens over draft hose inlets are required at all times. Screens shall have a maximum opening of 1.75 mm for woven wire or 3/32 inch for perforated plate. |

891.03 Equipment

- A. Positive control of water application is required. Equipment shall provide uniform application of water without ponding or washing.
- B. An air gap or positive anti-siphon device shall be provided between the water source and the vehicle being loaded if the vehicle has been used for other than water haul, if the source is a domestic potable water supply, or the water is used for tank mixing with any other materials.
- C. The designated water sources may require some work prior to their use. Such work may include cleaning ponded areas, installing temporary weirs or sandbags, pipe repair, pump installation, or other items appropriate to the Purchaser's operations. Flowing streams may be temporarily sandbagged or a weir placed to pond water, provided a minimum flow of 50% of normal cu. ft/sec is maintained. Obtain approval from the Contracting Officer on improvements for sandbags or weirs prior to placement.

T-892 BITUMINOUS PRODUCTS (5/07)

892.01 Cutback Asphalt's and Emulsified Asphalt's

Meet the requirements and application temperatures of Section 702 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03)".

892.02 Bituminous Dust Palliatives

Meet the bituminous dust palliatives requirements listed in Table T-892-1 or listed in the SUPPLEMENTAL SPECIFICATIONS.

892.03 Certificate of Compliance

Provide a Certificate of Compliance in the following format;

| | | | |
|--|------------|---------------------------|-------|
| Consignee | <u>N/A</u> | Designation | _____ |
| Contract Number | _____ | Date | _____ |
| Identification (Truck No. Car No., Etc.) | _____ | | |
| Type and Grade | _____ | With Additive (% , Brand) | _____ |
| Loading Temperature | _____ | Net Weight | _____ |
| Net Liters | _____ | | |

The shipment of bituminous material identified above and covered by the bill of lading complies with Government Standard Specification as modified by SUPPLEMENTAL SPECIFICATIONS applicable to this project.

Producer _____
 Signed _____
 (Producer's Representative)

892.04 Application Temperatures

Apply bituminous materials within the temperature ranges indicated in Table T-892-2.

TABLE T-892-2 - Application Temperatures

Application Temperature Range (Degrees C)

| <u>Type & Grade of Material</u> | <u>Min./Max.</u> | <u>Spray</u> | <u>Mix</u> |
|-------------------------------------|------------------|------------------|------------|
| | | <u>Min./Max.</u> | |
| MC 30 | | 21-63 | 16-40 |
| MC 70 | | 40-85 | 32-68 |
| DO-1-2-3 | | 27-52 | |
| DO-4 | | 27-80 | |
| DO-6-7-8 | | 10-60 | |

TABLE 892-1.- Bituminous dust palliatives.

| General Requirements | ASTM Method | DO-1 | DO-2 | DO-3 | DO-4 | DO-6 | DO-6P | DO-8 |
|--|-------------|--------|---------|----------|--------|---------|---------|----------|
| Flash Point | | | | | | | | |
| Tag Open-Cup, °C, Min | D 1310 | 52 | 52 | 52 | 93 | 66 | 66 | |
| Cleveland Open-Cup, °C, Min | D 92 | - | - | - | - | - | - | 100 |
| | - | - | - | - | - | - | - | - |
| Viscosity: | - | - | - | - | - | - | - | - |
| Kinematic, @ 38 °C, cSt | D 2170 | 40-70 | 90-125 | 135-200 | 20-100 | - | - | - |
| Saybolt Furol, @ 25 °C SFS Max. | D 88 | - | - | - | - | 75-150 | 25-50 | 50 |
| Water, % Max. | D 95 | 0. | 0.5 | 0.5 | 0. | - | - | - |
| Asphaltnes, %s | D 2006-70 | 3-6 | 4-8 | 5-10 | 0-5 | 5-15 | 5-15 | 5-10 |
| Saturates. % Min. | D 2006-70 | 25 | 25 | 25 | 10 | 25 | 25 | 8 |
| 24-Hour Settlement, % | D 244 | - | - | - | - | 2.0 | 2.0 | 2.0 |
| Sieve Test, % Max. | D 244 | - | - | - | - | - | - | 0.1 |
| Distillation Tests | | | | | | | | |
| Total Distillate to 288 °C, Max. % by Volume | D 244 | 35 | 30 | 30 | 5 | - | - | 50 |
| Total Distillate to 360 °C, Max. % by Volume | D 402 | - | - | - | - | - | - | - |
| Oil Distillate, % by Volume | D 244 | - | - | - | - | - | 10-20 | 5 |
| Total Residue, % by Weight | D 244 | - | - | - | - | 60 | 55 | 45 |
| Test on Residue from Distillate | | | | | | | | |
| Viscosity, Kenmatic, @ 38 °C ,cST | D 2170 | 75-250 | 200-600 | 500-1500 | 20-150 | - | - | - |
| Viscosity, Kenmatic, @ 50 °C, cST | D 2170 | - | - | - | - | 200-600 | 150-450 | 250-1200 |
| Solubility in Trichloroethylene, % Min. | D 2042 | 98 | 98 | 98 | 98 | 96 | 96 | 98 |
| Ductility, CM Min. | D 113 | - | - | - | - | - | - | - |

Attachment

D

Slow DxP Timber Sale Specified Road Reconstruction

TABLE OF CONTENTS

| | |
|-----------------------------------|----------|
| Reconstruction Costs | 1 Page |
| Schedule of Items | 2 Pages |
| Reconstruction Plans | 8 Pages |
| Specifications Listing | 3 Pages |
| Supplemental Specifications | 56 Pages |

Slow Dxp Timber Sale Specified Road Reconstruction

RECONSTRUCTION COSTS

Road Reconstruction Total Estimated Costs

| <u>Proj. Number</u> | <u>Estimated Costs</u> |
|-----------------------------|------------------------|
| NFSR 42 | \$ 39,865.00 |
| NFSR 4220 | \$ 87,890.00 |
| NFSR 4220125 | \$ 1,800.00 |
| NFSR 4230 | \$ 16,188.00 |
| | <hr/> |
| Total: | \$ 145,743.00 |
| | <hr/> |
| TOTAL RECONSTRUCTION | \$ 145,743.00 |
| | |
| Public Works Cost = | \$ 166.003.00 |

Slow Dxp Timber Sale Specified Road Reconstruction
SCHEDULE OF ITEMS

National Forest System Road 42: 10.50 miles

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL COST |
|--------------|---|----------|-----------|---------------|---------------------|
| 15101 | Mobilization | Lump Sum | 1 | \$ 8,100.00 | \$ 8,100.00 |
| 30359 | Roadway Reconditioning, Asphalt Surface, Mechanical Broom | Mile | 10.50 | \$ 410.00 | \$ 4,305.00 |
| 63401A | Pavement Markings, Yellow Centerline Stripe, Type B | Mile | 21.00 | \$ 580.00 | \$ 12,180.00 |
| 63401B | Pavement Markings, White Fog Stripe, Type B | Mile | 21.00 | \$ 580.00 | \$ 12,180.00 |
| 63501 | Temporary Traffic Control | Lump Sum | 1 | \$ 6,000.00 | \$ 6,000.00 |
| | | | | TOTAL: | \$ 39,865.00 |

Payment will be made on actual work performed as described in FP-03 109.01.

National Forest System Road 4220: 5.48 miles

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL COST |
|--------------|--|-------------|-----------|---------------|---------------------|
| 15101 | Mobilization | Lump Sum | 1 | \$11,500.00 | \$ 11,500.00 |
| 15713 | Soil Erosion & Pollution Control | Lump Sum | 1 | \$ 800.00 | \$ 800.00 |
| 20359 | Removal of Asphalt, Disposal Method (a) | Square Yard | 10 | \$ 14.50 | \$ 145.00 |
| 20401 | Roadway Excavation, Compaction Method B | *Cubic Yard | 20 | \$ 46.00 | \$ 920.00 |
| 30301 | Road Reconditioning, Pulverization 6-in depth, Compaction Method B | Mile | 1.63 | \$10,500.00 | \$ 17,115.00 |
| 30307 | Road Reconditioning, Scarify 6-in Depth, Compaction Method B | Mile | 1.65 | \$ 7,000.00 | \$ 11,550.00 |
| 32211 | Aggregate Surface Course, Grading S, Compaction Method B | *Cubic Yard | 2270 | \$ 18.00 | \$ 40,860.00 |
| 63501 | Temporary Traffic Control | Lump Sum | 1 | \$ 5,000.00 | \$ 5,000.00 |
| | | | | TOTAL: | \$ 87,890.00 |

* Denotes a Contract Quantity

Payment will be made on actual work performed as described in FP-03 109.01.

Slow Dxp Timber Sale Specified Road Reconstruction

National Forest System Road 4220125: 0.50 miles

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL COST |
|--------------|----------------|----------|-----------|---------------|--------------------|
| 15101 | Mobilization | Lump Sum | 1 | \$ 200.00 | \$ 200.00 |
| 21201 | Linear Grading | Mile | 0.50 | \$ 3,200.00 | \$ 1,600.00 |
| | | | | TOTAL: | \$ 1,800.00 |

Payment will be made on actual work performed as described in FP-03 109.01.

National Forest System Road 4230: 1.36 miles

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL COST |
|--------------|---|----------|-----------|---------------|---------------------|
| 15101 | Mobilization | Lump Sum | 1 | \$ 2,100.00 | \$ 2,100.00 |
| 15713 | Soil Erosion & Pollution Control | Lump Sum | 1 | \$ 1,300.00 | \$ 1,300.00 |
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs (g), Logs (i), Stumps (f) | Mile | 1.36 | \$ 2,600.00 | \$ 3,536.00 |
| 20204 | Special Clearing and Grubbing, Disposal of Tops and Limbs (g), Logs (i), Stumps (f) | Mile | 1.36 | \$ 5,700.00 | \$ 7,752.00 |
| 63501 | Temporary Traffic Control | Lump Sum | 1 | \$ 1,500.00 | \$ 1,500.00 |
| | | | | TOTAL: | \$ 16,188.00 |

Payment will be made on actual work performed as described in FP-03 109.01.

PLOTTED SHEET SIZE: 11" x 17"



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE - REGION SIX
SUB-REGIONAL ENGINEERING GROUP



Mt. Hood National Forest

SHEET INDEX

| SHEET NO. | SHEET TITLE |
|-----------|--|
| 1 | TITLE AND PROJECT LOCATION |
| 2 | PROJECT VICINITY MAP |
| 3 | ESTIMATE OF QUANTITIES |
| 4 | ROAD RECONSTRUCTION SUMMARIES |
| 5 | ROAD RECONSTRUCTION TYPICAL SECTIONS |
| 6 | ROAD RECONSTRUCTION TYPICAL DETAILS |
| 7 | TYPICAL TEMPORARY TRAFFIC CONTROL PLAN |
| 8 | DEVILS RIDGE QUARRY PLAN |

| | | | |
|----------------------------|-------------------------|---------------------------|----------------|
| DESIGNED BY: L. JIMENEZ | DRAWN BY: L. JIMENEZ | CHECKED BY: J. CASWELL | SCALE: NONE |
|----------------------------|-------------------------|---------------------------|----------------|

DESIGNED BY
Lucas Jimenez 05/30/16
DESIGNER - LUCAS JIMENEZ DATE

REVIEWED BY
Rithy Bein 05/31/16
REVIEWING ENGINEER - RITHY BEIN DATE

DEVELOPMENT ENGINEER - JEFF CASWELL DATE
RECOMMENDED BY

ZONE ENGINEER - TIM MERTEN DATE
APPROVAL

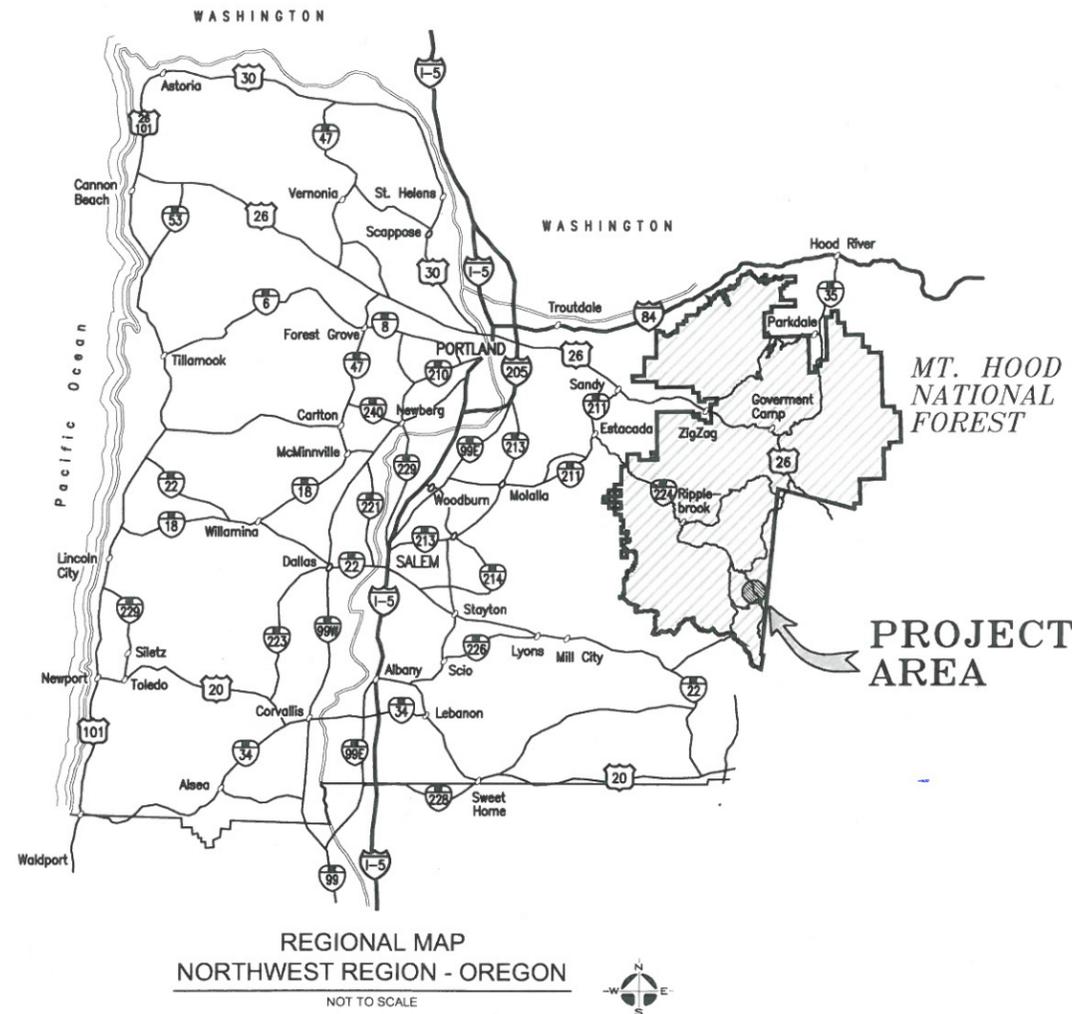
DISTRICT RANGER - JACKIE GROCE DATE
Jackie Groce 5/31/16
FOREST ENGINEER - KRISTIN AUSTIN DATE

PLANS FOR
**Slow DXP Timber Sale
Specified Road Reconstruction**

| ROAD NO. | MILE POSTS | TYPE OF WORK |
|--------------|---------------|----------------|
| NFSR 4220 | 0.97 to 6.45 | RECONSTRUCTION |
| NFSR 4220125 | 0.00 to 0.50 | RECONSTRUCTION |
| NFSR 4230 | 0.00 to 1.36 | RECONSTRUCTION |
| NFSR 42 | 8.35 to 18.85 | RECONSTRUCTION |

USDA FOREST SERVICE
The Pacific Northwest Region

MT. HOOD NATIONAL FOREST
16400 Champion Way
Sandy, OR 97055



PROJECT LOCATIONS

Mt. Hood National Forest,
Clackamas River Ranger District
Clackamas County, Oregon

NFSR 42

Reconstruction
Mile Post: 8.35 to 18.85
Township & Range:

Township: T 5 S
Range: R 8-1/2 E
Section(s): 26 & 35

Township: T 6 S
Range: R 8-1/2 E
Section(s): PB 39 & 35

Township: T 6 S
Range: R 8 E
Section(s): PB 37, 12, 13,
24, & 25

Township: T 7 S
Range: R 8-1/2 E
Section(s): PB 38

Township: T 7 S
Range: R 8 E
Section(s): 1 & 2

NFSR 4220

Reconstruction
Mile Post: 0.97 to 6.45
Township & Range:

Township: T 7 S
Range: R 8 E
Section(s): 21 & 34

Township: T 8 S
Range: R 8 E
Section(s): 2, 3, 11, 12,
& PB 37

NFSR 4230

Reconstruction
Mile Post: 0.00 to 1.36
Township & Range:

Township: T 7 S
Range: R 8 E
Section(s): 34, 35, & 36

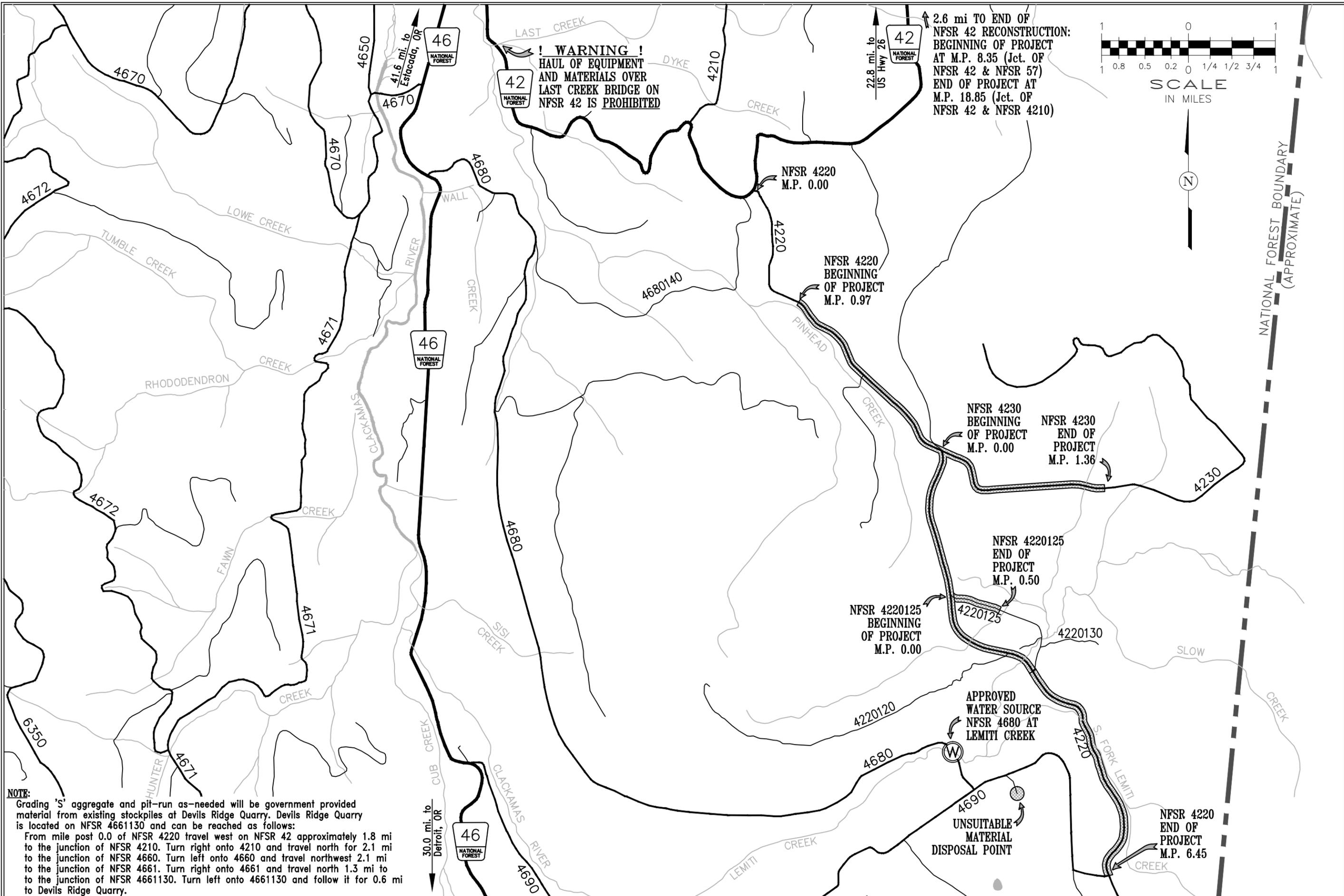
LEGEND

- = INTERSTATE HIGHWAY
- = FEDERAL HIGHWAY
- = STATE HIGHWAY

PROJECT: Slow DXP Timber Sale Specified Road Reconstruction

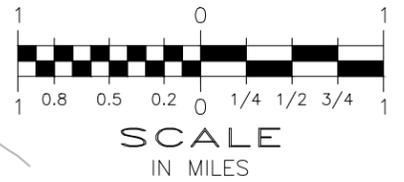
SHEET TITLE:

SHEET



! WARNING !
 HAUL OF EQUIPMENT
 AND MATERIALS OVER
 LAST CREEK BRIDGE ON
 NFSR 42 IS PROHIBITED

2.6 mi TO END OF
 NFSR 42 RECONSTRUCTION:
 BEGINNING OF PROJECT
 AT M.P. 8.35 (Jct. OF
 NFSR 42 & NFSR 57)
 END OF PROJECT AT
 M.P. 18.85 (Jct. OF
 NFSR 42 & NFSR 4210)



NATIONAL FOREST BOUNDARY
 (APPROXIMATE)

NOTE:

Grading 'S' aggregate and pit-run as-needed will be government provided material from existing stockpiles at Devils Ridge Quarry. Devils Ridge Quarry is located on NFSR 4661130 and can be reached as follows:
 From mile post 0.0 of NFSR 4220 travel west on NFSR 42 approximately 1.8 mi to the junction of NFSR 4210. Turn right onto 4210 and travel north for 2.1 mi to the junction of NFSR 4660. Turn left onto 4660 and travel northwest 2.1 mi to the junction of NFSR 4661. Turn right onto 4661 and travel north 1.3 mi to the junction of NFSR 4661130. Turn left onto 4661130 and follow it for 0.6 mi to Devils Ridge Quarry.

| | |
|--------------|------------|
| DESIGNED BY: | L. JIMENEZ |
| DRAWN BY: | L. JIMENEZ |
| CHECKED BY: | J. CASWELL |
| SCALE: | NONE |



USDA FOREST SERVICE
 The Pacific Northwest Region

MT. HOOD NATIONAL FOREST
 16400 Champion Way
 Sandy, OR 97055

PROJECT: Slow Dxp Timber Sale Specified Road Reconstruction

SHEET TITLE:

PROJECT VICINITY MAP

SHEET
 2 of 8

42 ROAD (10.50 MILES)

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | QTY | NOTES |
|--------------|---|----------|-------|--|
| 15101 | MOBILIZATION | LUMP SUM | 1 | FIRE PROTECTION, WEED PREVENTION, AND EQUIPMENT CLEANING ARE INDIRECT TO THIS PAY ITEM. |
| 30359 | ROADWAY RECONDITIONING, ASPHALT SURFACE, MECHANICAL BROOM | MILE | 10.50 | MACHINE BROOM SWEEP AND CLEAN THE EXISTING ROAD SURFACE OF ALL LOOSE MATERIAL, DIRT, MOSS, AND OTHER DELETERIOUS SUBSTANCES. |
| 63401A | PAVEMENT MARKINGS, YELLOW CENTERLINE STRIPE, TYPE B | MILE | 21.00 | INCLUDES RESTRIPING OF ROADWAY ACCORDING TO SPECIFICATIONS SECTION 634; CONFORM TO MUTCD STANDARD DIMENSIONS. |
| 63401B | PAVEMENT MARKINGS, WHITE FOG STRIPE, TYPE B | MILE | 21.00 | INCLUDES RESTRIPING OF ROADWAY ACCORDING TO SPECIFICATIONS SECTION 634; CONFORM TO MUTCD STANDARD DIMENSIONS. |
| 63501 | TEMPORARY TRAFFIC CONTROL | LUMP SUM | 1 | |

4220 ROAD (5.48 MILES)

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | QTY | NOTES |
|--------------|---|-------------|-------|--|
| 15101 | MOBILIZATION | LUMP SUM | 1 | FIRE PROTECTION, WEED PREVENTION, AND EQUIPMENT CLEANING ARE INDIRECT TO THIS PAY ITEM. |
| 15713 | SOIL EROSION AND POLLUTION CONTROL | LUMP SUM | 1 | INCLUDES ALL EROSION AND POLLUTION CONTROL MEASURES, AND EMERGENCY WORK DURING STORM EVENTS TO PREVENT SITE DAMAGE AND POLLUTION. SEEDING & MULCHING ARE INCIDENTAL TO THIS PAY ITEM. |
| 20359 | REMOVAL OF ASPHALT, DISPOSAL METHOD (a) | SQUARE YARD | 10 | INCLUDES SAWCUTTING AND REMOVAL OF ASPHALT. DISPOSE OF MATERIAL PER SECTION 203.05 (a) - REMOVE FROM PROJECT. |
| 20401 | ROADWAY EXCAVATION, COMPACTION METHOD B | *CUBIC YARD | 20 | INCLUDES EXCAVATION, SHAPING, AND COMPACTION OF ROADWAY TO SUBGRADE ELEVATION AT EXISTING FAILURE SITE ACCORDING TO SUBSECTION 204.06(a). DISPOSAL OF UNSUITABLE MATERIAL FOUND IN THE WORK IS INCIDENTAL TO THIS PAY ITEM. |
| 30301 | ROAD RECONDITIONING, PULVERIZATION TO 6-INCH DEPTH, COMPACTION METHOD B | MILE | 1.63 | INCLUDES PAVEMENT PULVERIZATION, WATERING, GRADING, AND COMPACTION ACCORDING TO SUPPLEMENTAL SUBSECTION 303.08 (SEE DETAIL 2, SHEET 5). DISPOSAL OF UNSUITABLE MATERIAL FOUND IN THE WORK IS INCIDENTAL TO THIS PAY ITEM. DEVELOPMENT OF WATER SUPPLY AND WATERING PER SECTION 170 IS CONSIDERED INCIDENTAL TO THE WORK. |
| 30307 | ROAD RECONDITIONING, SCARIFY TO 6-INCH DEPTH, COMPACTION METHOD B | MILE | 1.65 | INCLUDES ROAD SCARIFYING, WATERING, GRADING, AND COMPACTION ACCORDING TO SUPPLEMENTAL SUBSECTION 303.06 (SEE DETAIL 1, SHEET 5). DISPOSAL OF OVERSIZED MATERIAL FOUND IN THE WORK IS INCIDENTAL TO THIS PAY ITEM. DEVELOPMENT OF WATER SUPPLY AND WATERING PER SECTION 170 IS CONSIDERED INCIDENTAL TO THE WORK. |
| 32211 | AGGREGATE SURFACE COURSE, GRADING S, COMPACTION METHOD B | *CUBIC YARD | 2,270 | INCLUDES LOADING, HAULING, AND PLACING OF GOVERNMENT PROVIDED MATERIAL FROM EXISTING STOCKPILE AT DEVILS RIDGE QUARRY. |
| 63501 | TEMPORARY TRAFFIC CONTROL | LUMP SUM | 1 | |

* - DENOTES A CONTRACT QUANTITY

4220125 ROAD (0.50 MILES)

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | QTY | NOTES |
|--------------|----------------|----------|------|--|
| 15101 | MOBILIZATION | LUMP SUM | 1 | FIRE PROTECTION, WEED PREVENTION, AND EQUIPMENT CLEANING ARE INDIRECT TO THIS PAY ITEM. |
| 21201 | LINEAR GRADING | MILE | 0.50 | INCLUDES RECONSTRUCTING DECOMPACTED ROADBED TO MATCH EXISTING ALIGNMENT PER SECTION 212 OF THE SPECIFICATIONS. CONSTRUCT ROAD SECTION TO MATCH EXISTING ROAD SECTION FROM MILE POST 0.50 TO END OF ROAD. |

4230 ROAD (1.36 MILES)

| PAY ITEM NO. | DESCRIPTION | PAY UNIT | QTY | NOTES |
|--------------|---|----------|------|--|
| 15101 | MOBILIZATION | LUMP SUM | 1 | FIRE PROTECTION, WEED PREVENTION, AND EQUIPMENT CLEANING ARE INDIRECT TO THIS PAY ITEM. |
| 15713 | SOIL EROSION AND POLLUTION CONTROL | LUMP SUM | 1 | INCLUDES ALL EROSION AND POLLUTION CONTROL MEASURES, AND EMERGENCY WORK DURING STORM EVENTS TO PREVENT SITE DAMAGE AND POLLUTION. TEMPORARY CHECK DAMS AND SEEDING & MULCHING ARE INCIDENTAL TO THIS PAY ITEM. |
| 20103 | CLEARING AND GRUBBING, DISPOSAL OF TOPS AND LIMBS (g), LOGS (i), STUMPS (f) | MILE | 1.36 | CHIP OR GRIND ALL UNMERCHANTABLE VEGETATION AND DEBRIS FOR USE AS MULCH ON DISTURBED SOILS AND FILL SLOPES. DISPOSE OF MERCHANTABLE MATERIAL ACCORDING TO THE TERMS OF THE TIMBER SALE CONTRACT. |
| 20204 | SPECIAL CLEARING AND GRUBBING, DISPOSAL OF TOPS AND LIMBS (g), LOGS (i), STUMPS (f) | MILE | 1.36 | CHIP OR GRIND ALL UNMERCHANTABLE VEGETATION AND DEBRIS FOR USE AS MULCH ON DISTURBED SOILS AND FILL SLOPES. DISPOSE OF MERCHANTABLE MATERIAL ACCORDING TO THE TERMS OF THE TIMBER SALE CONTRACT. |
| 63501 | TEMPORARY TRAFFIC CONTROL | LUMP SUM | 1 | |

DESIGNED BY: L. JIMENEZ
 DRAWN BY: L. JIMENEZ
 CHECKED BY: J. CASWELL
 SCALE: NONE



USDA FOREST SERVICE
 The Pacific Northwest Region
 MT. HOOD NATIONAL FOREST
 16400 Champion Way
 Sandy, OR 97055

PROJECT: Slow Dxp Timber Sale Specified Road Reconstruction

SHEET TITLE:

ESTIMATE OF QUANTITIES

| 42 ROAD RECONSTRUCTION SUMMARY | |
|--------------------------------|--|
| M.P. 0.00 | JUNCTION OF NFSR 42 AND US HWY 26. (REFERENCE ONLY) |
| M.P. 8.35 | JUNCTION OF NFSR 42 AND NFSR 57 (RIGHT). BEGIN ROAD RECONSTRUCTION PROJECT. BEGIN ASPHALT SURFACE CLEANING PER SECTION 303.06. BEGIN ROADWAY CENTERLINE STRIPING PER SECTION 634. BEGIN ROADWAY FOG LINE STRIPING PER SECTION 634. |
| M.P. 18.85 | JUNCTION OF NFSR 42 AND NFSR 4210 (RIGHT). END ASPHALT SURFACE CLEANING. END ALL ROADWAY STRIPING WORK. END ROAD RECONSTRUCTION PROJECT. |

| 4220 ROAD RECONSTRUCTION SUMMARY | |
|----------------------------------|--|
| M.P. 0.00 | JUNCTION OF NFSR 42 (SKYLINE ROAD) AND NFSR 4220. (REFERENCE ONLY) |
| M.P. 0.97 | BEGIN ROAD RECONSTRUCTION PROJECT. SAWCUT 1-ft. WIDTH BEYOND EXISTING PAVEMENT GAP AND REMOVE ASPHALT AROUND EXISTING FAILURE TO 30-ft. x 15-ft. DIMENSIONS. EXCAVATE FAILURE TO 1.5-ft. DEPTH TO REMOVE UNSUITABLE MATERIAL AND PREPARE FOUNDATION. BACKFILL TO SUBRADE ELEVATION WITH SUITABLE ROADWAY EXCAVATION, SHAPE & COMPACT. HAUL, PLACE, AND COMPACT 4-INCH DEPTH OF SURFACE AGGREGATE. |
| M.P. 2.67 | JUNCTION OF NFSR 4220 AND NFSR 4230. (REFERENCE ONLY) |
| M.P. 2.69 | BEGIN ASPHALT PAVEMENT PULVERIZATION, 6-INCH DEPTH, AS STAKED IN THE FIELD BY THE CONTRACTING OFFICER. |
| M.P. 2.76 | END ASPHALT PAVEMENT PULVERIZATION, 6-INCH DEPTH, AS STAKED IN THE FIELD BY THE CONTRACTING OFFICER. |
| M.P. 3.00 | BEGIN ASPHALT PAVEMENT PULVERIZATION, 6-INCH DEPTH, AS STAKED IN THE FIELD BY THE CONTRACTING OFFICER. |
| M.P. 4.19 | END ASPHALT PAVEMENT PULVERIZATION, 6-INCH DEPTH, AS STAKED IN THE FIELD BY THE CONTRACTING OFFICER. |
| M.P. 4.43 | BEGIN ASPHALT PAVEMENT PULVERIZATION, 6-INCH DEPTH, AS STAKED IN THE FIELD BY THE CONTRACTING OFFICER. |
| M.P. 4.80 | END ASPHALT PAVEMENT PULVERIZATION, 6-INCH DEPTH, AT END OF PAVEMENT. BEGIN ROAD RECONDITIONING (SCARIFICATION AND SHAPING) OF NATIVE SURFACE TO 6-INCH DEPTH. BEGIN PLACEMENT OF SURFACE AGGREGATE, GRADING 'S', FOR THE FULL WIDTH OF THE ROAD PER DETAIL 1, SHEET 5. |
| M.P. 6.45 | JUNCTION OF NFSR 4220 AND NFSR 4690. END ROAD RECONDITIONING (SCARIFICATION AND SHAPING) OF NATIVE SURFACE. END PLACEMENT OF SURFACE AGGREGATE, GRADING 'S'. END ROAD RECONSTRUCTION PROJECT. |

| 4220125 ROAD RECONSTRUCTION SUMMARY | |
|-------------------------------------|---|
| M.P. 0.00 | JUNCTION OF NFSR 4220 AND NFSR 4220125. BEGIN ROAD RECONSTRUCTION PROJECT. BEGIN LINEAR GRADING PER SPECIFICATIONS SECTION 212. |
| M.P. 0.50 | END LINEAR GRADING. END ROAD RECONSTRUCTION PROJECT |

| 4230 ROAD RECONSTRUCTION SUMMARY | |
|----------------------------------|---|
| M.P. 0.00 | JUNCTION OF NFSR 4220 AND NFSR 4230. BEGIN ROAD RECONSTRUCTION PROJECT. BEGIN CLEARING AND GRUBBING OF ALL TREES WITHIN THE ROAD SHOULDER AND DRAINAGE DITCH. (SEE DETAIL 1, SHEET 6) |
| M.P. 1.33 | JUNCTION NFSR 4230 AND NFSR 4230-037. (REFENCE ONLY) |
| M.P. 1.36 | END CLEARING & GRUBBING. END ROAD RECONSTRUCTION PROJECT |

GENERAL NOTES

1. ALL QUANTITIES SHOWN ON THE ESTIMATE OF QUANTITIES ARE IN-PLACE COMPACT QUANTITIES; NO EXPANSION OR COMPACTION FACTORS HAVE BEEN APPLIED. MAXIMUM ALLOWABLE DEVIATIONS FROM PLAN LINES, GRADES, CROSS SECTIONS, AND DIMENSIONS SHALL BE ACCORDING TO CONSTRUCTION TOLERANCE CLASS B AS DEFINED BY "TABLE 204-2 CONSTRUCTION TOLERANCES".
2. STORAGE OF ALL EQUIPMENT AND MATERIALS ON GOVERNMENT LANDS WILL BE AT APPROVED LOCATIONS ONLY AND BE STORED AT THE CONTRACTOR'S RISK.
3. ANY DAMAGE TO THE EXISTING ROAD SYSTEM, INSIDE OR OUTSIDE OF THE WORK AREA, WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
4. EXTRACT WATER FOR CONSTRUCTION OPERATIONS ONLY FROM APPROVED WATER SOURCES AS SHOWN ON SHEET 2, PROJECT VICINITY MAP. AT ANY TIME WHEN THE WATER AT THESE LOCATIONS IS INSUFFICIENT FOR THE PROPOSED WORK, THE CONTRACTOR WILL DEVELOP A WATER SUPPLY AT ANOTHER NEARBY LOCATION AS DESIGNATED BY THE CONTRACTING OFFICER.
5. FISH SCREENING IS REQUIRED OVER THE INLETS OF DRAFT HOSES AT ALL TIMES DURING WATER EXTRACTION AT ANY SITE. DRAFTING OF WATER SHALL NOT DRAW DOWN STREAM FLOW BY GREATER THAN 10% FROM THE WATER SOURCE. ALL APPROPRIATE EROSION CONTROL DEVICES SUCH AS WATTLES, SILT FENCING, OR OTHER MEASURES SHALL BE IMPLEMENTED TO PROTECT THE STREAM COURSE FROM SEDIMENTATION GENERATED BY TRAFFIC, SITE MAINTENANCE, OR EROSION RESULTING FROM DRAFTING OPERATIONS.
6. SEEDING AND MULCHING OF ALL DISTURBED AREAS OUTSIDE OF ROAD TRAVEL WAYS IS REQUIRED AND CONSIDERED INCIDENTAL TO PAY ITEMS 15713 - SOIL EROSION AND POLLUTION CONTROL, FOR EACH ROAD PROJECT.

DESIGNED BY:
L. JIMENEZ
DRAWN BY:
L. JIMENEZ
CHECKED BY:
J. CASWELL
SCALE:
NONE

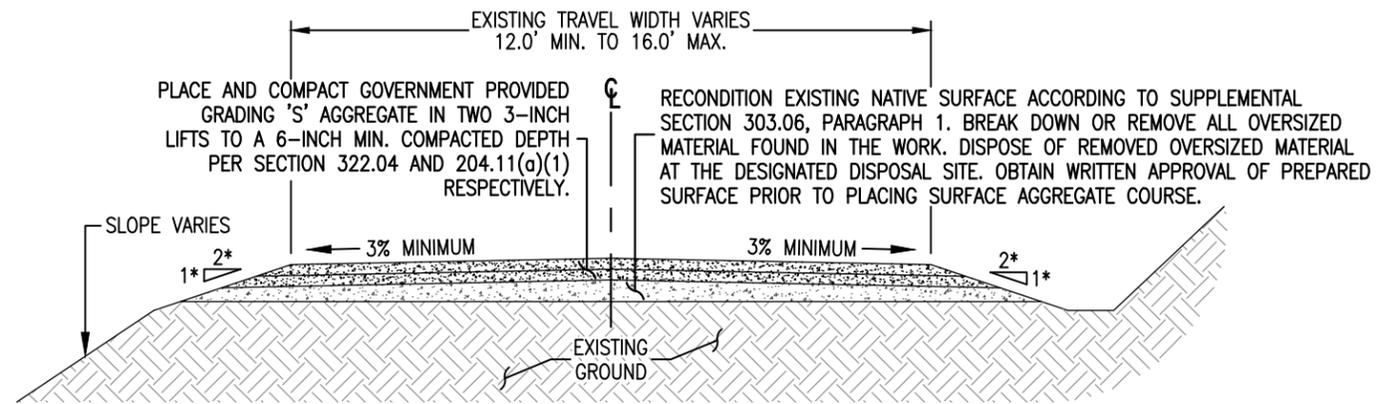


USDA FOREST SERVICE
The Pacific Northwest Region
MT. HOOD NATIONAL FOREST
16400 Champion Way
Sandy, OR 97055

PROJECT: Slow Dxp Timber Sale Specified Road Reconstruction

SHEET TITLE:

ROAD RECONSTRUCTION SUMMARIES

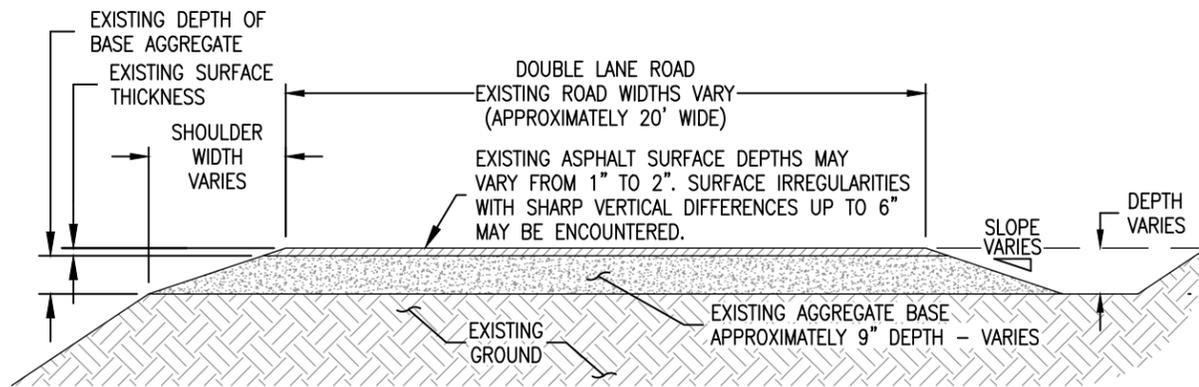


* DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS WITH THE APPROVAL OF THE CONTRACTING OFFICER.

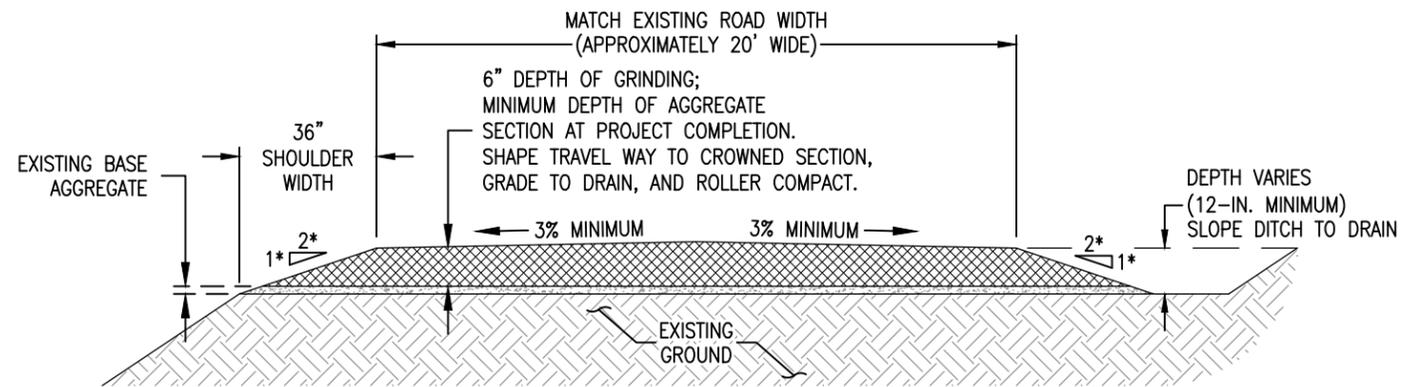
ROAD SECTION

1 TYPICAL AGGREGATE PLACEMENT ROAD SECTION

Applies to: NFSR 4220 Mile Posts 4.80 – 6.45
NOT TO SCALE



TYPICAL ROAD CROSS SECTION BEFORE PULVERIZATION



* DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS WITH THE APPROVAL OF THE CONTRACTING OFFICER.

TYPICAL ROAD CROSS SECTION AFTER PULVERIZATION

2 ASPHALT PAVEMENT PULVERIZATION DETAIL

Applies to: NFSR 4220 Mile Posts 2.69 – 2.76, 3.00 – 4.19, and 4.43 – 4.80
NOT TO SCALE

DESIGNED BY: L. JIMENEZ
DRAWN BY: L. JIMENEZ
CHECKED BY: J. CASWELL
SCALE: NONE



USDA FOREST SERVICE
The Pacific Northwest Region

MT. HOOD NATIONAL FOREST
16400 Champion Way
Sandy, OR 97055

Slow Dxp Timber Sale Specified Road Reconstruction

ROAD RECONSTRUCTION TYPICAL SECTIONS

PROJECT:

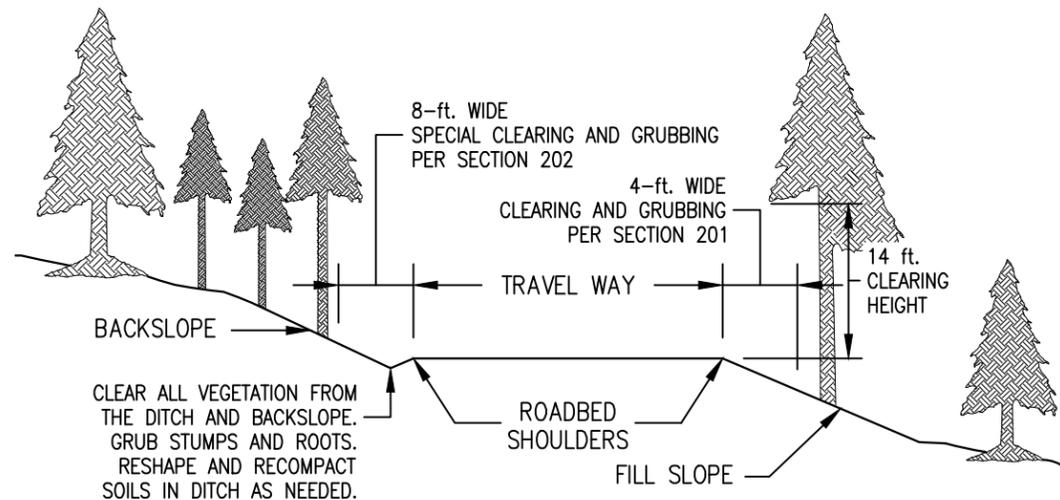
SHEET TITLE:

SHEET

5 of 8

NOTES:

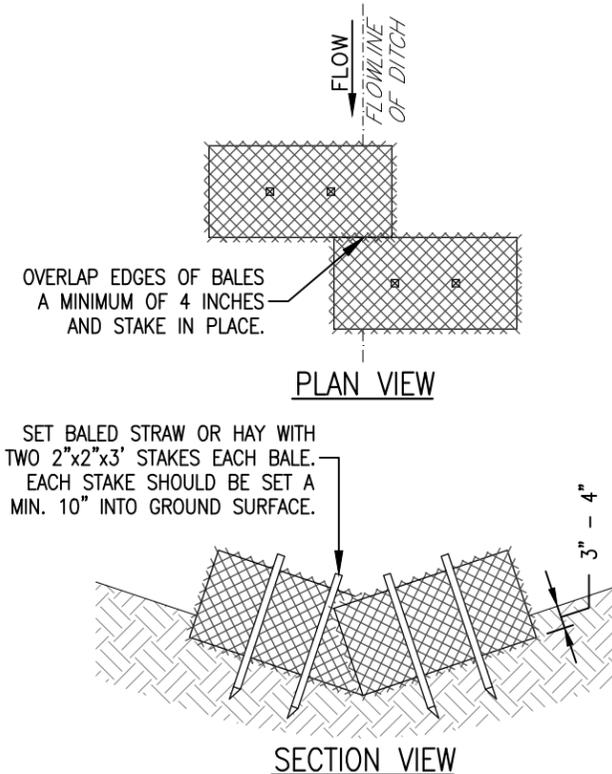
1. SEED AND MULCH ALL DISTURBED AREAS PER SECTION 625.
2. SEED WILL BE GOVERNMENT PROVIDED MATERIAL.
3. MULCH WILL BE PURCHASER PRODUCED MATERIAL FROM CHIPPING OF CLEARING DEBRIS. COST FOR CHIPPING OF MATERIAL ARE INCIDENTAL TO PAY ITEM 20103 - CLEARING AND GRUBBING.
4. COSTS FOR SEEDING AND MULCHING WORK ARE INCIDENTAL TO PAY ITEM 15713 - SOIL EROSION AND POLLUTION CONTROL.



1 CLEARING LIMITS TYPICAL DETAIL
Applies to: NFSR 4230
NOT TO SCALE

NOTES:

1. SET EACH BALE 3" TO 4" BELOW SURFACE OF DITCHLINE.
2. USE ONLY CERTIFIED WEED FREE HAY OR STRAW.
3. DITCH CHECKS TO BE SET IN DITCH LINE 15-FOOT UPSTREAM OF EACH EXISTING OR NEW CULVERT INLET. CLEAN AND RECONDITION EXISTING CULVERT INLETS AS NEEDED.
4. COSTS FOR TEMPORARY DITCH CHECKS ARE INCIDENTAL TO PAY ITEM 15713 - SOIL EROSION AND POLLUTION CONTROL.



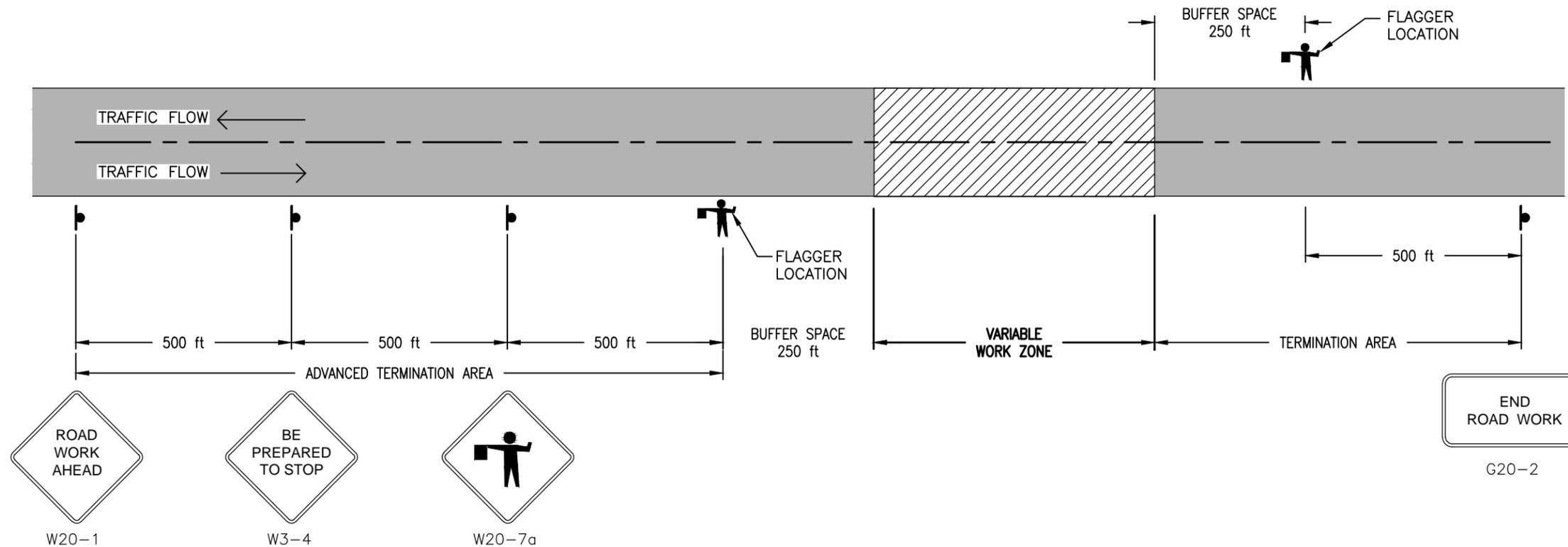
2 TEMPORARY DITCH CHECK DETAIL
Applies to: NFSR 4230
NOT TO SCALE

DESIGNED BY: L. JIMENEZ
DRAWN BY: L. JIMENEZ
CHECKED BY: J. CASWELL
SCALE: NONE



USDA FOREST SERVICE
The Pacific Northwest Region
MT. HOOD NATIONAL FOREST
16400 Champion Way
Sandy, OR 97055

PROJECT: Slow Dxp Timber Sale Specified Road Reconstruction
SHEET TITLE: ROAD RECONSTRUCTION TYPICAL DETAILS



TYPICAL TEMPORARY TRAFFIC CONTROL WITH FLAGGERS
NOT TO SCALE

TRAFFIC CONTROL NOTES

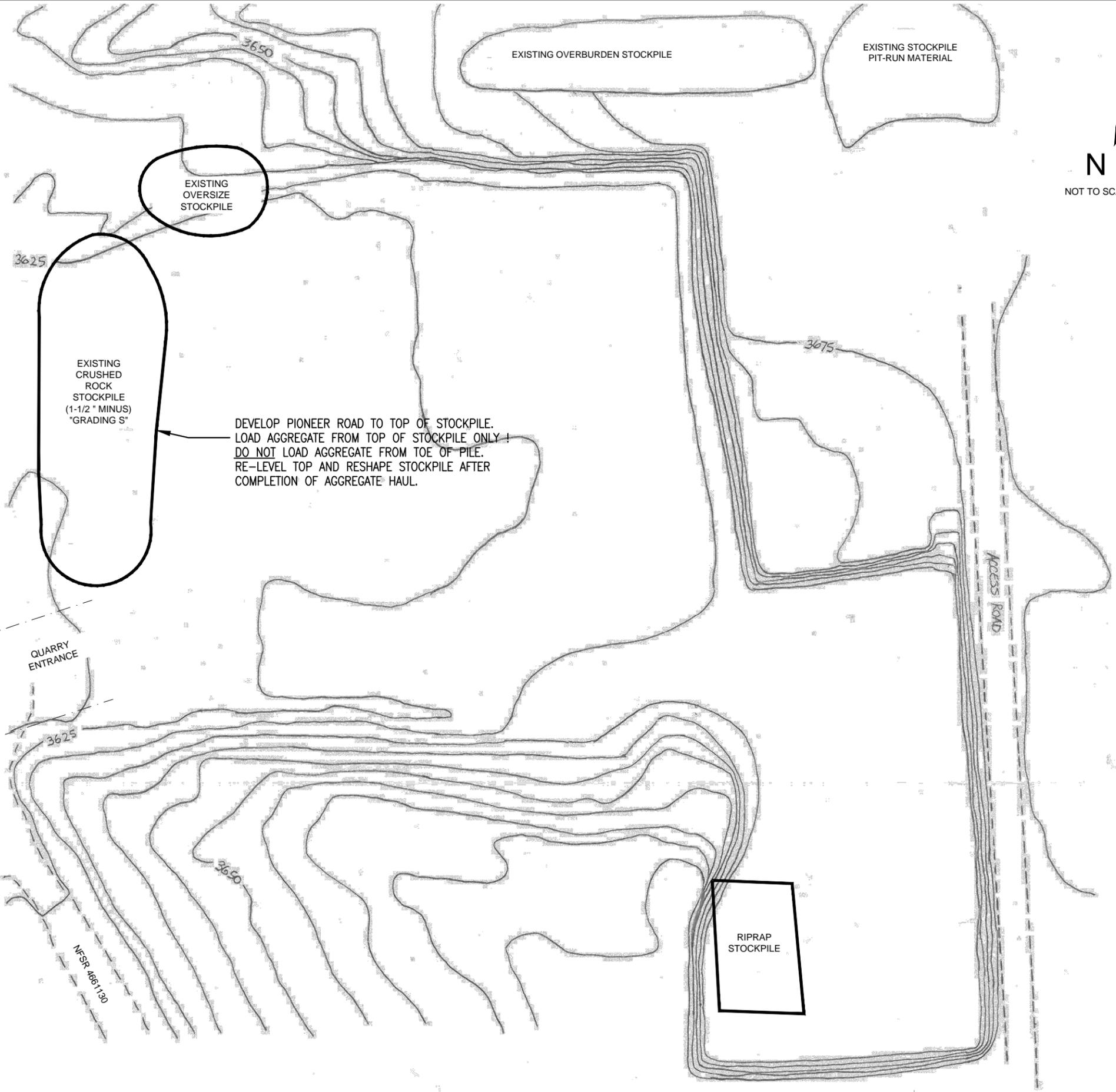
1. ERECT ALL ADVANCE WARNING SIGNS AND IMPLEMENT ALL TRAFFIC CONTROL MEASURES BEFORE STARTING CONSTRUCTION WORK.
2. SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL ONLY. PLACE DEVICES SIMILAR TO THOSE DEPICTED FOR THE OPPOSITE DIRECTION OF TRAVEL.
3. NOT ALL MEASURES SHOWN ON THE TEMPORARY TRAFFIC CONTROL DETAIL MAY BE APPLICABLE TO THIS PROJECT, NOR DOES THE DETAIL SHOW EVERY MEASURE WHICH MAY BE NECESSARY TO ENSURE PUBLIC SAFETY. THE CONTRACTOR MAY ADD OR DELETE INFORMATION AND DETAILS IN THIS TRAFFIC CONTROL PLAN AS NECESSARY TO ACCOMMODATE ACTUAL OPERATIONS WITH WRITTEN APPROVAL FROM THE CONTRACTING OFFICER.
4. FINAL LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE CHANGED TO FIT FIELD CONDITIONS AS APPROVED BY THE CONTRACTING OFFICER.
5. FOR PILOT CAR OPERATION, MOUNT THE "PILOT CAR FOLLOW ME" (G20-4) SIGN AT A CONSPICUOUS LOCATION ON THE REAR OF VEHICLE. PROMINENTLY DISPLAY THE NAME OF THE CONTRACTOR OR TRAFFIC CONTROL SUB-CONTRACTOR ON THE PILOT CAR.
6. FOR NIGHT TIME FLAGGING OPERATION, PROVIDE FLOODLIGHTING AT FLAGGER STATIONS PER OSHA REGULATIONS. WHERE NIGHT TIME FLAGGING WILL NOT OCCUR, GRADE ROAD CROSS-SLOPES TO BE CONTINUOUS FOR FULL ROAD WIDTH AND PROVIDE SMOOTH ROADWAY TRANSITIONS FOR TRAFFIC SAFETY PRIOR TO SHUT-DOWN OF DAILY CONSTRUCTION OPERATIONS. MAINTAIN ALL WARNING SIGNS AND PROVIDE TRAFFIC CONES WITH RETRO-REFLECTIVE TAPE OR HIGH VISIBILITY RETRO REFLECTIVE MARKERS ALONG THE FULL LENGTH OF THE VARIABLE WORK ZONE PRIOR TO SHUT-DOWN OF DAILY CONSTRUCTION OPERATIONS.
7. WHERE ADVANCED WARNING SIGNS, PLACED AS SHOWN, INTERFERE WITH PERMANENT TRAFFIC CONTROL DEVICES, LOCATE THE WARNING SIGNS AS APPROVED BY THE CONTRACTING OFFICER TO ACHIEVE BEST RESULTS. MESSAGES MAY BE VARIED AS REQUIRED.
8. IF W20-1 IS ON A ROADWAY OTHER THAN THAT ON WHICH ACTUAL CONSTRUCTION WORK OCCURS, INCLUDE A SUPPLEMENTAL PLAQUE INDICATING THE NAME OF THE ROAD WHICH THE WORK IS ON.
9. IF SIGNS WILL BE IN PLACE MORE THAN 72 CONSECUTIVE HOURS, USE GROUND-MOUNTED POSTS.
10. ENSURE ALL SIGN SUPPORTS EXPOSED TO IMPACT BY TRAFFIC MEET THE REQUIREMENTS OF NCHRP-350 FOR CRASH WORTHINESS.
11. DO NOT ALLOW EQUIPMENT, MATERIALS, OR VEHICLES TO BE PARKED OR STORED IN THE BUFFER SPACE.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT TRAFFIC CONTROL FLAGGERS AND OTHER TRAFFIC CONTROL PERSONNEL HAVE ADEQUATE COMMUNICATIONS CAPABILITY AT ALL TIMES. TRAFFIC CONTROL PERSONNEL MUST BE ABLE TO COMMUNICATE WITH EACH OTHER AND THE SITE CONSTRUCTION SUPERINTENDENT AT ALL TIMES TO SAFELY COORDINATE THE FLOW OF TRAFFIC WITH THE WORK BEING CONDUCTED. CONSTRUCTION WILL TAKE PLACE IN REMOTE LOCATIONS WITH NO CELLULAR SERVICE AND TRAFFIC CONTROL PERSONNEL ARE REQUIRED TO HAVE AND MAINTAIN A MEANS OF CONTACTING EMERGENCY RESPONSE FROM THE WORK SITE IN THE EVENT OF AN EMERGENCY.
13. CONTRACTOR SHALL SUBMIT AN ACCEPTABLE TRAFFIC CONTROL PLAN AT LEAST 10 DAYS PRIOR TO BEGINNING RECONSTRUCTION WORK. "ROAD WORK AHEAD" WARNING SIGNS, TRAFFIC CONTROL FLAGGER WARNING SIGNS, AND TYPE III BARRICADES SHALL BE SET IN PLACE AND MAINTAINED ON ALL ROAD SEGMENTS WHERE CONSTRUCTION WILL TAKE PLACE. ALL SIGNS AND TRAFFIC MARKERS SHALL COMPLY WITH GUIDELINES SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.

DESIGNED BY: L. JIMENEZ
 DRAWN BY: L. JIMENEZ
 CHECKED BY: J. CASWELL
 SCALE: NONE



USDA FOREST SERVICE
 The Pacific Northwest Region
 MT. HOOD NATIONAL FOREST
 16400 Champion Way
 Sandy, OR 97055

PROJECT: **Slow Dxp Timber Sale Specified Road Reconstruction**
 SHEET TITLE: **TYPICAL TEMPORARY TRAFFIC CONTROL PLAN**



N
NOT TO SCALE

- QUARRY OPERATION NOTES:
1. COORDINATE QUARRY ACTIVITIES WITH OTHER QUARRY USERS.
 2. EXCAVATE MATERIAL ONLY WITHIN THE AREA STAKED BY THE C.O.
 3. COMPLETE FINAL GRADING AND CLEANUP IMMEDIATELY AFTER ROCK REMOVAL.
 4. REMOVE ALL REFUSE FROM NATIONAL FOREST LAND.

DEVELOP PIONEER ROAD TO TOP OF STOCKPILE.
LOAD AGGREGATE FROM TOP OF STOCKPILE ONLY!
DO NOT LOAD AGGREGATE FROM TOE OF PILE.
RE-LEVEL TOP AND RESHAPE STOCKPILE AFTER
COMPLETION OF AGGREGATE HAUL.

| |
|----------------------------|
| DESIGNED BY: L. JIMENEZ |
| DRAWN BY: L. JIMENEZ |
| CHECKED BY: J. CASWELL |
| SCALE: NONE |



USDA FOREST SERVICE
The Pacific Northwest Region
MT. HOOD NATIONAL FOREST
16400 Champion Way
Sandy, OR 97055

PROJECT: **Slow Dxp Timber Sale Specified Road Reconstruction**
SHEET TITLE: **DEVILS RIDGE QUARRY PLAN**

Slow DXP Timber Sale Road Reconstruction

FP-03 SPECIFICATIONS LIST

U.S. Forest Service
Clackamas River Ranger District Mt. Hood
National Forest Clackamas County, Oregon

All specifications not included in the specifications listing, but referenced by listed specifications, are applicable to this contract. The Supplemental Specifications shown on the specifications list are physically attached. Section 100 through 725 of the Standard specifications and all other Standard or Supplemental specifications shown in the specification listing are applicable to this contract.

| Section | Title | Revised |
|----------------|---|------------------------|
| | Preface | FP-03 and 3/15/2004 |
| 101 | Terms, Format, and Definitions | FP-03 |
| 101.01 | Meaning of Terms | 1/22/2009 |
| 101.01 | Meaning of Terms | 1/22/2009 |
| 101.03 | Abbreviations | 6/16/2006 |
| 101.04 | Definitions | 3/29/2007 |
| 101.04 | Definitions | 11/06/2007 |
| 102 | Bid, Award, and Execution of Contract | FP-03 |
| 102.00 | Bid, Award, and Execution of Contract | 2/16/2005 |
| 103 | Scope of Work | FP-03 |
| 103.00 | Deletions | 2/16/2005 |
| 104 | Control of Work | FP-03 |
| 104.00 | Deletions | 6/16/2006 |
| 104.03 | Specifications and Drawings | 1/22/2009 |
| 104.06 | Use of Roads by Contractor | 2/17/2005 |
| 105 | Control of Material | FP-03 |
| 105.02 | Material Sources | 1/18/2007 |
| 105.02(a) | Contractor Provided Sources | 3/8/2007 |
| 105.02(a) | Government Provided Sources | 1/18/2007 |
| 105.05 | Use of Material Found in Work | 5/12/2004 |
| 106 | Acceptance of Work | FP-03 |
| 106.01 | Conformity with Contract Requirements | 7/31/2007 |
| 106.07 | Delete | 5/11/2004 |
| 107 | Legal Relations and Responsibility to the Public | FP-03 |
| 107.05 | Responsibility for Damage Claims | 5/11/2004 |
| 107.06 | Contractor's Responsibility for Work | 6/16/2006 |

Slow DXP Timber Sale

| | | |
|------------|---|------------|
| 107.08 | Sanitation, Health, and Safety | 3/29/2005 |
| 107.09 | Legal Relationship of the Parties | 6/16/2006 |
| 107.10 | Environmental Protection | 6/16/2006 |
| 108 | Prosecution and Progress | FP-03 |
| 108.00 | Delete | 2/16/2005 |
| 109 | Measurement and Payment | FP-03 |
| 109.00 | Deletions | 2/17/2005 |
| 109.02 | Measurement Terms and Definitions | 6/16/2006 |
| 151 | Mobilization | FP-03 |
| 153 | Contractor Quality Control | FP-03 |
| 153.04 | Records | 10/24/2007 |
| 155 | Schedules for Contracts | FP-03 |
| 155.00 | Delete | 5/11/2004 |
| 156.00 | Public Traffic | 4/17/2007 |
| 157 | Soil Erosion Control | FP-03 |
| 157.03 | General | 2/24/2005 |
| 170 | Develop Water Supply and Watering | FP-03 |
| 170.00 | Develop Water Supply and Watering | 3/26/2007 |
| 201 | Clearing and Grubbing | FP-03 |
| 201.00 | Clearing and Grubbing | 8/5/2009 |
| 201.01 | Description | 2/18/2005 |
| 201.04 | Clearing (c) | 2/22/2005 |
| 201.06 | Disposal | 2/18/2005 |
| 202 | Additional Clearing and Grubbing | FP-03 |
| 203 | Removal of Structures and Obstructions | FP-03 |
| 203.01 | Description | 2/25/2005 |
| 203.04 | Removing Material | 2/18/2005 |
| 203.05 | Disposing of Material | 3/26/2007 |
| 203.05 | Disposing of Material | 2/18/2005 |
| 203.08 | Payment | 2/24/2005 |
| 204.00 | Excavation and Embankment | 3/26/2009 |
| 204.03 | Materials | 5/19/2008 |
| 212 | Linear Grading | FP-03 |
| 303 | Road Reconditioning | FP-03 |
| 303.01 | Work | 3/2/2005 |
| 303.06 | Asphalt and Aggregate Surface Reconditioning | 8/5/2008 |
| 303.08 | Pulverizing | 3/26/2007 |
| 303.10 | Measurement | 3/29/2005 |
| 322 | Minor Aggregate Courses | FP-03 |
| 322.00 | Minor Aggregate Courses | 10/14/2011 |
| 625 | Turf Establishment | FP-03 |

Slow DXP Timber Sale

| | | |
|------------|---|-----------|
| 625.05 | Watering | 3/30/2005 |
| 625.06 | Fertilizing | 9/17/2008 |
| 625.07 | Seeding | 9/17/2008 |
| 634 | Permanent Pavement Markings | FP-03 |
| 635 | Temporary Traffic Control | FP-03 |
| 635.03 | General | 5/13/2004 |
| 703 | Aggregate | FP-03 |
| 703.05 | Subbase, Base, Surface Course, and Screened Aggregate | 8/14/2009 |
| 703.05 | Tables 703-2, 703-3, and 703-16 | 7/14/2010 |
| 703.05 | Subbase, Base, & Surface Course Aggregate (Pit Run) | 3/26/2007 |
| 703.07 | Correction to Table 703-2 | 3/2/2005 |
| 703.10(e) | Flakiness Index | 4/11/2011 |
| 703.10(i) | Adherent Coating | 4/11/2011 |
| 718 | Traffic Signing and Marking Materials | FP-03 |
| 718.02 | Protective Overlay Film and Edge Film | 3/2/2005 |
| 718.05 | Aluminum Panels | 8/5/2009 |

Table of Contents

| | |
|---|----|
| Preface..... | 4 |
| 101 - Terms, Format, and Definitions..... | 5 |
| 101.01 Meaning of Terms..... | 5 |
| 101.01 Meaning of Terms..... | 5 |
| 101.03 Abbreviations..... | 5 |
| 101.04 Definitions..... | 5 |
| 101.04 Definitions..... | 8 |
| 102 - Bid, Award, and Execution of Contract | 9 |
| 102 Bid, Award, and Execution of Contract..... | 9 |
| 103 - Scope of Work..... | 9 |
| Deletions | 9 |
| 104 - Control of Work..... | 9 |
| Deletions | 9 |
| 104.03..... | 9 |
| 104.06 Use of Roads by Contractor..... | 9 |
| 105 - Control of Material | 10 |
| 105.02 Material Sources. | 10 |
| 105.02(a) Contractor-provided sources. | 10 |
| 105.02(a) Government Provided Sources..... | 10 |
| 105.05 Use of Material Found in the Work..... | 10 |
| 106 - Acceptance of Work | 12 |
| 106.01 Conformity with Contract Requirements..... | 12 |
| 106.07 Delete | 14 |
| 107 - Legal Relations and Responsibility to the Public..... | 15 |
| 107.05 Responsibility for Damage Claims..... | 15 |
| 107.06 Contractor’s Responsibility for Work..... | 15 |
| 107.08 Sanitation, Health, and Safety..... | 15 |
| 107.09 Legal Relationship of the Parties..... | 15 |
| 107.10 Environmental Protection..... | 15 |

Slow DXP Timber Sale

| | |
|--|----|
| 108 - Prosecution and Progress..... | 17 |
| 108 Delete..... | 17 |
| 109 - Measurement and Payment..... | 17 |
| 109 Deletions..... | 17 |
| 109.02 Measurement Terms and Definitions..... | 17 |
| 153 - Contractor Quality Control..... | 18 |
| 153.04 Records..... | 18 |
| 155 - Schedules for Construction Contracts..... | 18 |
| 155 Delete..... | 18 |
| 156 - Public Traffic..... | 19 |
| 170 - Develop Water Supply and Watering..... | 21 |
| 201 - Clearing and Grubbing..... | 22 |
| 201.02 Material:..... | 22 |
| 201.01 Description..... | 22 |
| 201.04 Clearing. (c)..... | 22 |
| 201.06 Disposal..... | 23 |
| 203 - Removal of Structures and Obstructions..... | 24 |
| 203.01 Description..... | 24 |
| 203.04 Removing Material..... | 24 |
| 203.05 Disposing of Material..... | 24 |
| 203.05 Disposing of Material..... | 24 |
| 203.08 Payment..... | 25 |
| 204 - Excavation and Embankment..... | 26 |
| Replace Section 204 in its entirety with the following:..... | 26 |
| 204.03 Materials..... | 38 |
| 303 - Road Reconditioning..... | 39 |
| 303.01 Work..... | 39 |
| 303.06 Aggregate Surface Reconditioning..... | 39 |
| 303.06 Asphalt and Aggregate Surface Reconditioning..... | 39 |
| 303.08 Pulverizing..... | 39 |
| 303.10 Measurement..... | 40 |

Slow DXP Timber Sale

| | |
|---|----|
| 322 - Minor Aggregate Courses..... | 41 |
| 625 - Turf Establishment | 48 |
| 625.05 Watering..... | 48 |
| 625.06 Fertilizing..... | 48 |
| 625.07 Seeding. (b) Hydraulic method..... | 48 |
| 635 - Temporary Traffic Control | 49 |
| 635.03 General..... | 49 |
| 703 - Aggregate..... | 50 |
| 703.05 Subbase, Base, Surface Course, and Screened Aggregate..... | 50 |
| Delete Table 703-2 and replace with the following:..... | 52 |
| Table 703-16..... | 54 |
| Gradation Requirements for Screened Aggregate | 54 |
| 703.05 Subbase, Base, & Surface Course Aggregate (Pit Run). | 55 |
| Table 703-2 Correction..... | 55 |
| 703.10(e) Flakiness Index..... | 55 |
| 703.10(i) Adherent Coating. | 55 |
| 718 - Traffic Signing and Marking Material..... | 56 |
| 718.02 Protective Overlay Film and Edge Film. | 56 |
| 718.05 Aluminum Panels..... | 56 |

Preface

Preface_wo_03_15_2004_m

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-03 for construction of National Forest System Roads.

101 - Terms, Format, and Definitions

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

Delete all references to the TAR (Transportation Acquisition Regulations) in the specifications.

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

Delete all references to the FAR (Federal Acquisition Regulations) in the specifications.

101.03_nat_us_06_16_2006

101.03 Abbreviations.

Add the following to (a) Acronyms:

| | |
|-------|--|
| AFPA | American Forest and Paper Association |
| MSHA | Mine Safety and Health Administration |
| NIST | National Institute of Standards and Technology |
| NESC | National Electrical Safety Code |
| WCLIB | West Coast Lumber Inspection Bureau |

.

Add the following to (b) SI symbols:

| | |
|-----|------------------|
| mp | Milepost |
| ppm | Part Per Million |

101.04_nat_us_03_29_2007

101.04 Definitions.

Delete the following definitions and substitute the following:

Bid Schedule--The Schedule of Items.

Bridge--No definition.

Contractor--The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the “purchaser”.

Culvert--No definition.

Right-of-Way--A general term denoting (1) the privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or (2) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

Add the following:

Adjustment in Contract Price--“Equitable adjustment,” as used in the Federal Acquisition Regulations, or “construction cost adjustment,” as used in the Timber Sale Contract, as applicable.

Change--“Change” means “change order” as used in the Federal Acquisition Regulations, or “design change” as used in the Timber Sale Contract.

Design Quantity--“Design quantity” is a Forest Service method of measurement from the FS-96 *Forest Service Specifications for the Construction of Roads and Bridges*. Under these FP specifications this term is replaced by the term “Contract Quantities”.

Forest Service--The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

Neat Line--A line defining the proposed or specified limits of an excavation or structure.

Pioneer Road--Temporary construction access built along the route of the project.

Purchaser--The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through agents, employees, or subcontractors.

Protected Streamcourse--A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

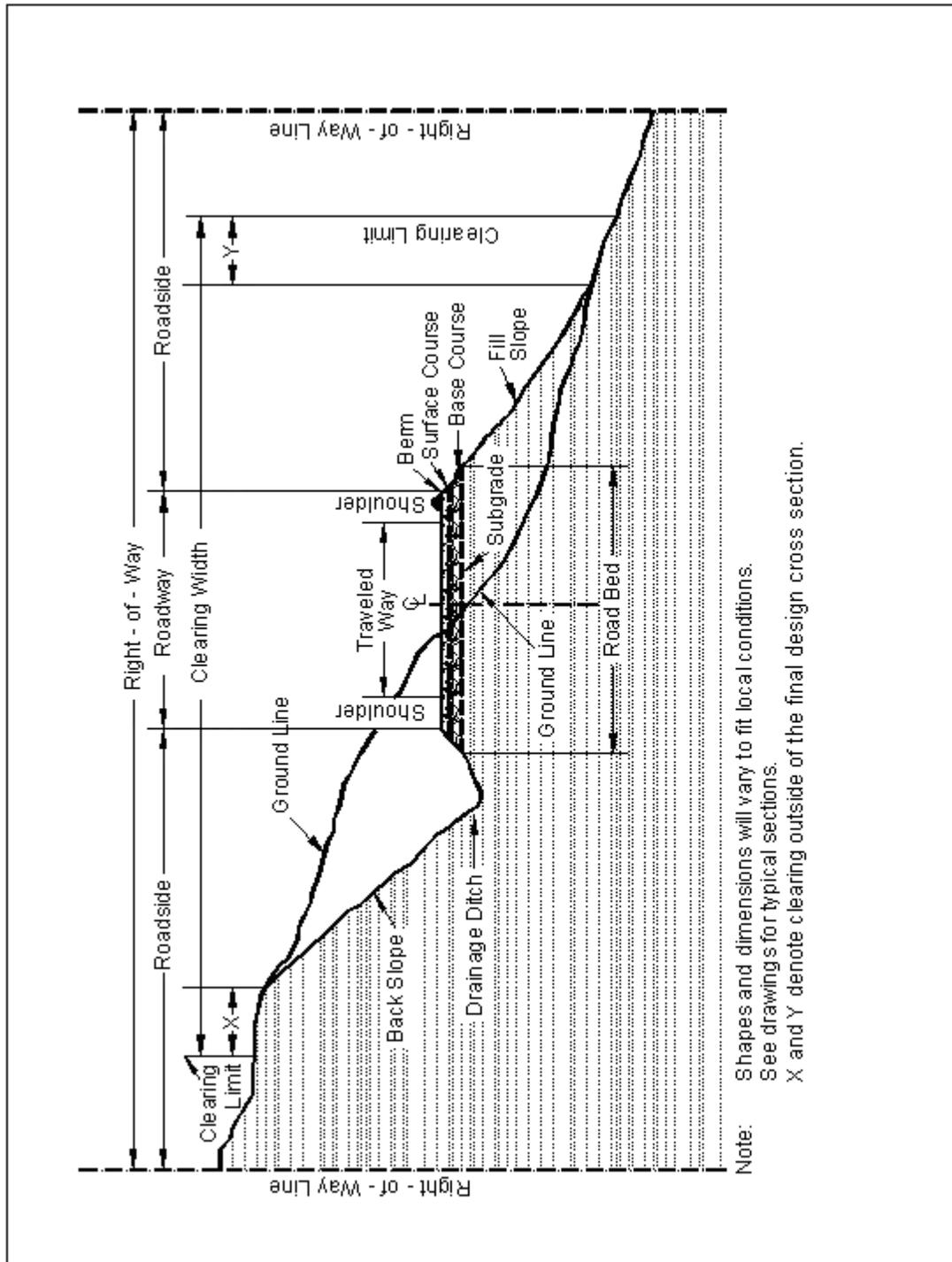
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

Schedule of Items--A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

Utilization Standards--The minimum size and percent soundness of trees described in the specifications to determine merchantable timber.

Add Figure 101-1—Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



101.04 Definitions.

Delete the following definitions:

Contract Modification

Day

Notice to Proceed

Solicitation

102 - Bid, Award, and Execution of Contract

102.00_nat_us_02_16_2005

102 Bid, Award, and Execution of Contract

Delete Section 102 in its entirety.

103 - Scope of Work

103.00_nat_us_02_16_2005

Deletions

Delete all but subsection 103.01 Intent of Contract.

104 - Control of Work

104.00_nat_us_06_16_2006

Deletions

Delete Sections 104.01, 104.02, and 104.04.

104.03_nat_us_01_22_2009

104.03 Specifications and Drawings.

Delete 104.03.

104.06_nat_us_02_17_2005

Add the following subsection:

104.06 Use of Roads by Contractor

The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

105 - Control of Material

105.02_nat_us_03_08_2007

105.02 Material Sources.

105.02(a) Contractor-provided sources.

Add the following:

All material (e.g., soil, gravel, sand, borrow, aggregate, etc.) transported onto National Forest System land or incorporated into the work will be weed-free. The Contracting Officer may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds of concern in the local area. The following applies to this contract:

A Forest Service weed specialist will inspect proposed sources to determine weed-free status. Provide the Contracting Officer written notification of proposed material sources **10** days prior to use. Written approval of the specific source will be provided to the contractor. If weed species are present in the proposed source, appropriate mitigation measures may allow conditional use of the source as required by the Contracting Officer.

105.02_nat_us_01_18_2007

105.02(a) Government Provided Sources.

(a) Government-provided sources. Add the following:

Government-provided sources for this project are identified as follows:

(1) Government-provided mandatory sources.

Obtain material for use as Grading S aggregate from Devils Ridge Quarry.

(2) Government-provided optional sources.

There are no government-provided optional sources which are applicable to this contract.

105.05_nat_us_05_12_2004

105.05 Use of Material Found in the Work.

Delete 105.05 (a) and (b) and the last sentence of the second paragraph and substitute the following:

Slow Dxp Timber Sale

Materials produced or processed from Government lands in excess of the quantities required for performance of this contract are the property of the Government. The Government is not obligated to make reimbursement for the cost of producing these materials.

106 - Acceptance of Work

106.01_nat_us_07_31_2007

106.01 Conformity with Contract Requirements.

Delete Subsection 106.01 and substitute the following:

References to standard test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the methods in effect on the date of solicitation for bids.

Perform all work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown on the plans or specified in the contract.

Incorporate manufactured materials into the work according to the manufacturer's recommendations or to these specifications, whichever is more strict.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which any deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

When standard manufactured items are specified (such as fence, wire, plates, rolled shapes, pipe conduits, etc., that are identified by gauge, unit mass, section dimensions, etc.), the identification will be considered to be nominal masses or dimensions. Unless specific contract tolerances are noted, established manufacturing tolerances will be accepted.

The Government may inspect, sample, or test all work at any time before final acceptance of the project. When the Government tests work, copies of test reports are furnished to the Contractor upon request. Government tests may or may not be performed at the work site. If Contractor testing and inspection is verified by the Government, the Contractor's results may be used by the Government to evaluate work for acceptance. Do not rely on the availability of Government test results for process control.

Acceptable work conforming to the contract will be paid for at the contract unit bid price. Four methods of determining conformity and accepting work are described in Subsections 106.02 to 106.05 inclusive. The primary method of acceptance is specified in each Section of work. However, work may be rejected at any time it is found by any of the methods not to comply with the contract.

Remove and replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted, at no cost to the Government.

- (a) Disputing Government test results. **If the accuracy of Government test results is disputed, promptly inform the CO. If the dispute is unresolved after reasonable steps**

are taken to resolve the dispute, further evaluation may be obtained by written request. Include a narrative describing the dispute and a proposed resolution protocol that addresses the following:

- (1) Sampling method;
- (2) Number of samples;
- (3) Sample transport;
- (4) Test procedures;
- (5) Testing laboratories;
- (6) Reporting;
- (7) Estimated time and costs; and
- (8) Validation process.

If the evaluation requires additional sampling or testing be performed, mutually agree with the Government on witnessing procedures and on sampling and testing by a third party laboratory. Use a third party laboratory accredited by the AASHTO accreditation program. Provide proof of the laboratory's accreditation for the test procedures to be used. Do not use the same laboratory that produced the disputed Government test results or that produced the test results used as a basis for the dispute.

The CO will review the proposed resolution protocol and may modify it before final approval and execution.

The Government will use the approved resolution protocol test results to determine the validity of the disputed testing. If the Government test results are validated, the Contractor will be responsible for all costs associated with developing and performing the resolution protocol. If the Government test results are not validated, the Government will be responsible for all costs associated with developing and performing the resolution protocol. If the validity of the Government test results cannot be determined, the Contractor and Government will equally share all costs associated with developing and carrying out the resolution protocol.

(b) Alternatives to removing and replacing non-conforming work. As an alternative to removal and replacement, the Contractor may submit a written request to:

- (1) Have the work accepted at a reduced price; or
- (2) Be given permission to perform corrective measures to bring the work into conformity.

Slow DXP Timber Sale

The request must contain supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis. The CO will determine disposition of the nonconforming work.

106.07_nat_us_05_11_2004

106.07 Delete

Delete subsection 106.07.

107 - Legal Relations and Responsibility to the Public

107.05_nat_us_05_11_2004

107.05 Responsibility for Damage Claims.

Delete the entire subsection.

107.06_nat_us_06_16_2006

107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.

“except as provided in Subsection 106.07”.

107.08_nat_us_03_29_2005

107.08 Sanitation, Health, and Safety

Delete the entire subsection.

107.09_nat_us_06_16_2006

107.09 Legal Relationship of the Parties.

Delete the entire subsection.

107.10_nat_us_06_16_2006

107.10 Environmental Protection.

Add the following:

Design and locate equipment repair shops, stationary refueling sites, or other facilities to minimize the potential and impacts of hazardous material spills on Government land.

Before beginning any work, submit a Hazardous Spill Plan. List actions to be taken in the event of a spill. Incorporate preventive measures to be taken, such as the location of mobile refueling facilities, storage and handling of hazardous materials, and similar information. Immediately notify the CO of all hazardous material spills. Provide a written narrative report form no later than 24 hours after the initial report and include the following:

- Description of the item spilled (including identity, quantity, manifest number, and other identifying information).
- Whether amount spilled is EPA or state reportable, and if so whether it was reported, and to whom.

Slow Dxp Timber Sale

- Exact time and location of spill including a description of the area involved.
- Containment procedures.
- Summary of any communications the Contractor had with news media, Federal, state and local regulatory agencies and officials, or Forest Service officials.
- Description of clean-up procedures employed or to be employed at the site including final disposition and disposal location of spill residue.

When available provide copies of all spill related clean up and closure documentation and correspondence from regulatory agencies.

The Contractor is solely responsible for all spills or leaks that occur during the performance of this contract. Clean up spills or leaks to the satisfaction of the CO and in a manner that complies with Federal, state, and local laws and regulations.

108 - Prosecution and Progress

108.00_nat_us_02_16_2005

108 Delete.

Delete Section 108 in its entirety.

109 - Measurement and Payment

109.00_nat_us_02_17_2005

109 Deletions

Delete the following entire subsections:

109.06 Pricing of Adjustments.

109.07 Eliminated Work.

109.08 Progress Payments.

109.09 Final Payment.

109.02_nat_us_06_16_2006

109.02 Measurement Terms and Definitions.

(b) Contract quantity.

Add the following:

Contract quantities will be adjusted only when there are errors in the original design of 15% or more.

Change the following:

“(b) Cubic yard” to “(c) Cubic yard”.

Add the following definition:

(p) Thousand Board Feet (Mbf). 1,000 board feet based on nominal widths, thickness, and extreme usable length of each piece of lumber or timber actually incorporated in the job. For glued laminated timber, 1,000 board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

153 - Contractor Quality Control

153.04_nat_us_10_24_2007

153.04 Records.

Delete all but the first sentence

155 - Schedules for Construction Contracts

155.00_nat_us_05_11_2004

155 Delete.

Delete Section 155 in its entirety.

156 - Public Traffic

156.00_nat_us_04_17_2007

Delete Section 156 in its entirety and replace with the following:

Description

156.01 This work consists of controlling and protecting public traffic adjacent to and within the project.

Material

156.02 Conform to the MUTCD and the following Sections and Subsections:

| | |
|-----------------------------------|--------|
| Construction sign panels | 633 |
| Retro-reflective sheeting | 718.01 |
| Temporary concrete barrier | 618 |
| Temporary plastic fence | 710.11 |
| Temporary traffic control devices | 718.22 |

156.03 General. Unless otherwise provided for in Table 156-1, keep existing roads open to all traffic during road improvement work, and maintain them in a condition that will adequately accommodate traffic. Delays may not exceed 20 minutes at any one time followed by an open period of no less than 10 minutes.

Perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a traffic control plan has been approved. Post construction signs and traffic control devices in conformance with MUTCD. All required signs will be in place and approved prior to beginning work on project.

If the Contractor agrees in writing to allow public traffic to use a new road being constructed prior to completion, it will be considered an existing road for traffic control purposes.

156.04 Temporary Traffic Control. Install and maintain temporary traffic control devices adjacent to and within the project as required by the approved traffic control plan and the MUTCD. Install and maintain traffic control devices as follows:

- (a) Furnish and install traffic control devices before the start of construction operations.
- (b) All detours outside of clearing limits will be approved in writing by the Contracting Officer as part of the traffic control plan.

- (c) Install only those traffic control devices needed for each stage or phase.
- (d) Relocate temporary traffic control devices as necessary.
- (e) Remove devices that no longer apply to the existing conditions.
- (f) Immediately replace any device that is lost, stolen, destroyed, or inoperative.
- (g) Keep temporary traffic control devices clean.
- (h) Remove all temporary traffic control devices upon contract completion or when approved.
- (i) When required, use flaggers certified by the American Traffic Safety Services Association, the National Safety Council, the International Municipal Signal Association, a state agency, or other acceptable organization. Perform the work described under MUTCD Part 6. Use type III, VII, VIII, or IX retroreflective sheeting on flagger paddles. Do not use flags. Flaggers must wear high visibility safety apparel as required by MUTCD 6E.02.

156.05 Temporary Closures. Road segments may be closed as shown in Table 156-1. The maximum consecutive days of closure shall be followed by a minimum number of consecutive days open to traffic as shown. Maintain traffic control devices during closure period(s). Appropriate barricades and signs will be erected and maintained as shown in the traffic control plan or as otherwise designated.

Prior to closing roads during construction, give written notice to the Contracting Officer at least 10 days in advance.

Table 156-1

Temporary Road Closures

| Road Number | From Terminus | To Terminus | Maximum Consecutive Days of Closure | Minimum Consecutive Days Open |
|--------------------|----------------------|--------------------|--|--------------------------------------|
| N/A | | | | |

156.06 Acceptance. Public traffic work will be evaluated under Subsection 106.02.

Measurement and Payment

156.07 Do not measure Public Traffic for payment. Compensation is made as an indirect payment.

170 - Develop Water Supply and Watering

170.00_0618_us_03_26_2007

Description

170.01 This work consists of developing an acceptable water supply, furnishing, hauling, and applying water.

Materials

170.02 Conform to the following subsection.

| | |
|-------|---------|
| Water | 725.01. |
|-------|---------|

Construction Requirements

170.03 Development of Supply & Access. Develop water supplies and access to the water supplies as required. Use designated water sources or other approved water sources. Before using non-designated water sources, obtain all necessary permissions, water rights, and permits.

170.04 Equipment.

(a) Water tanks. Provide mobile watering equipment with watertight tanks of known capacity. Provide for positive control of water application from the driver's position.

(b) Juvenile fish protection. All draft hoses being used to withdraw water from any live flowing stream or pond will utilize one of the following methods of screening.

(1) Perforated plate: Screen opening shall not exceed 3/32 or 0.0938-inches.

(2) Profile bar screen: The narrowest dimension in the screen openings shall not exceed 0.0689-inches in the narrowest direction.

(3) Woven wire screen: Screen openings shall not exceed 3/32 or 0.0938-inches in the narrow direction.

All methods shall be cleaned frequently with either wire brushing, flushing or other acceptable method.

170.05 Application. Apply water uniformly without ponding or washing.

170.06 Acceptance. Developing water supplies and watering will be evaluated under Subsections 106.02 and 106.04.

Measurement and Payment

170.07 See Subsection 109.05.

Do not measure develop water supply and watering for payment.

201 - Clearing and Grubbing

201.00_nat_us_08_05_2009

201.02 Material:

Delete Tree wound dressing material reference.

201.03 General.

Delete the last sentence.

201.04 Clearing.

Delete the last sentence of (d).

201.01_nat_us_02_18_2005

201.01 Description

Replace with the following

This work consists of clearing and grubbing within clearing limits and other designated areas.

201.04_nat_us_02_22_2005

201.04 Clearing. (c)

Delete paragraph (c) and replace with the following:

(c) In areas outside the excavation, embankment, and slope rounding limits, cut stumps to within 12 inches or one-third of the stump diameter of the ground, whichever is higher, measured on the side adjacent to the highest ground. For timber sales, stump heights will meet the requirements of the Timber Sale contract.

201.04 Clearing.

Delete subsection (d) and replace with the following:

(d) Do not cut vegetation less than 3 feet tall and less than 3 inches in diameter, that is within the clearing limits but beyond the roadway and not in a decking area, and that does not interfere with sight distance along the road.

Add the following:

(e) Trim branches of remaining trees or shrubs to give a clear height of 14 feet above the roadbed unless otherwise indicated. Trim tree limbs as near flush with the trunk as practicable.

(f) Remove brush from log decks. Deck logs so that logs are piled parallel to one another; can be removed by standard log loading equipment; will not damage standing trees; will not interfere with drainage, and will not roll. Keep logs in log decks free of brush and soil.

201.06_nat_us_02_18_2005

201.06 Disposal.

Delete the first sentence of this subsection and substitute the following:

Dispose of merchantable timber designated for removal according to the provisions of the timber sale contract.

203 - Removal of Structures and Obstructions

203.01_nat_us_02_25_2005

203.01 Description.

Delete and replace with the following:

This work consists of disposing of construction slash and debris, salvaging, removing, and disposing of buildings, fences, structures, pavements, culverts, utilities, curbs, sidewalks, and other obstructions.

203.04_nat_us_02_18_2005

203.04 Removing Material.

Replace the fourth and fifth paragraphs with the following:

Where part of an existing culvert is removed, remove the entire culvert upstream from the removal. The remaining downstream culvert may be left in place if no portion of the culvert is within 12 inches of the subgrade, embankment slope, or new culvert or structure; and the culvert ends are sealed with concrete.

Remove structures and obstructions in the roadbed to 12 inches below subgrade elevation.

Remove structures and obstructions outside the roadbed to 12 inches below finished ground or to the natural stream bottom.

203.05_0618_us_03_26_2007

203.05 Disposing of Material

(a) Remove from project.

Delete the last two sentences

203.05_nat_us_02_18_2005

203.05 Disposing of Material.

Add the following:

(e) **Windrowing Construction Slash.** Place construction slash outside the roadway in neat, compacted windrows approximately parallel to and along the toeline of embankment slopes. Do not permit the top of the windrows to extend above subgrade. Use construction equipment to matt down all material in a windrow to form a compact and uniform pile. Construct breaks of at least 15 feet at least every 200 feet in a windrow. Do not place windrows against trees. Obtain approval for pioneer roads. A pioneer road may be constructed to provide an area for placement of windrows, provided the excavated material is kept within the clearing limits and does not adversely affect the road construction.

(f) Scattering. Scatter construction slash outside the clearing limits without damaging trees. Limb all logs. Place logs and stumps away from trees, positioned so they will not roll, and are not on top of one another. Limb and scatter other construction slash to reduce slash concentrations.

(g) Chipping or Grinding. Use an approved chipping machine to grind slash and stumps greater than 3 inches in diameter and longer than 3 feet. Deposit chips or ground woody material on embankment slopes or outside the roadway to a loose depth less than 6 inches. Minor amounts of chips or ground woody material may be permitted within the roadway if they are thoroughly mixed with soil and do not form a layer.

(h) Debris Mat. Use tree limbs, tops, cull logs, split stumps, wood chunks, and other debris to form a mat upon which construction equipment is operated. Place stumps upside down and blend stumps into the mat.

(i) Decking Firewood Material. Remove brush from decks. Limb and deck logs that do not meet Utilization Standards according to Subsection 201.04 as directed by the CO. Cut logs to lengths less than 30 feet. Ensure that logs stacks are stable and free of brush and soil.

(j) Removal to designated locations. Remove construction slash to designated locations.

(k) Piling. Pile construction slash in designated areas. Place and construct piles so that if the piles are burned, the burning will not damage remaining trees. Keep piles free of dirt from stumps. Cut unmerchantable logs into lengths of less than 20 feet.

(l) Placing Slash on Embankment Slopes. Place construction slash on completed embankment slopes to reduce soil erosion. Place construction slash as flat as practicable on the completed slope. Do not place slash closer than 2 feet below subgrade. Priority for use of available slash is for: (1) through fills; (2) insides of curves; and (3) ditch relief outlets.

(m) Hydrological Sensitive Placement. Where required use this method in combination with other designated methods to dispose of material to reduce erosion and to aid in re-vegetation:

1. Place windrow segments on contours, wrap in type I geotextile.
2. Place logs as log erosion barriers on contours. Place logs so that 80% of their length is on the ground surface.
3. Scatter slash on bare or disturbed areas within or outside the clearing limits as directed.
4. Scatter chips or ground woody material on bare or disturbed areas within or outside the clearing limits as directed.

Place stumps in swales or on sites to form planting pockets. Place windrow segments on contours, wrap in type I geotextile.

203.08_nat_us_02_24_2005

203.08 Payment

Add the following:

Disposal of construction slash will be compensated under the designated pay item in Section 201.

204 - Excavation and Embankment

204.00_nat_us_03_26_2009

Replace Section 204 in its entirety with the following:

Description

204.01 This work consists of excavating material and constructing embankments. This includes furnishing, hauling, stockpiling, placing, disposing, sloping, shaping, compacting, and finishing earthen and rocky material.

204.02 Definitions.

(a) **Excavation.** Excavation consists of the following:

(1) **Roadway excavation.** All material excavated from within the right-of-way or easement areas, except subexcavation covered in (2) below and structure excavation covered in Sections 208 and 209. Roadway excavation includes all material encountered regardless of its nature or characteristics.

(2) **Subexcavation.** Material excavated from below subgrade elevation in cut sections or from below the original groundline in embankment sections. Subexcavation does not include the work required by Subsections 204.05, 204.06(b), and 204.06(c).

(3) **Borrow excavation.** Material used for embankment construction that is obtained from outside the roadway prism. Borrow excavation includes unclassified borrow, select borrow, and select topping.

(b) **Embankment construction.** Embankment construction consists of placing and compacting roadway or borrow excavation. This work includes:

- (1) Preparing foundation for embankment;
- (2) Constructing roadway embankments;
- (3) Benching for side-hill embankments;
- (4) Constructing dikes, ramps, mounds, and berms; and
- (5) Backfilling subexcavated areas, holes, pits, and other depressions.

(c) **Conserved topsoil.** Excavated material conserved from the roadway excavation and embankment foundation areas that is suitable for growth of grass, cover crops, or native vegetation.

(d) **Waste.** Excess and unsuitable roadway excavation and subexcavation that cannot be used.

Material

204.03 Conform to the following Subsections:

| | |
|---------------------|--------|
| Backfill material | 704.03 |
| Select borrow | 704.07 |
| Select topping | 704.08 |
| Topping | 704.05 |
| Unclassified borrow | 704.06 |
| Water | 725.01 |

Construction Requirements

204.04 Preparation for Roadway Excavation and Embankment Construction. Clear the area of vegetation and obstructions according to Sections 201 and 203.

204.05 Reserved.

204.06 Roadway Excavation. Excavate as follows:

(a) General. Do not disturb material and vegetation outside the construction limits. Incorporate only suitable material into embankments. Replace any shortage of suitable material caused by premature disposal of roadway excavation. Dispose of unsuitable or excess excavation material according to Subsection 204.14.

At the end of each day's operations, shape to drain and compact the work area to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

Retrieve material deposited outside of the clearing limits as directed by the CO. Place unsuitable material in designated areas.

(b) Rock cuts. Blast rock according to Section 205. Excavate rock cuts to 6 inches below subgrade within the roadbed limits. Backfill to subgrade with topping or with other suitable material. Compact the material according to Subsection 204.11

(c) Earth cuts. Scarify earth cuts to 6 inches below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(d) Pioneer Roads. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

204.07 Subexcavation. Excavate material to the limits designated by the CO. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

204.08 Borrow Excavation. Use all suitable roadway excavation in embankment construction. Do not use borrow excavation when it results in excess roadway excavation. Deduct excess borrow excavation from the appropriate borrow excavation quantity.

Obtain borrow source acceptance according to Subsection 105.02. Develop and restore borrow sources according to Subsection 105.03. Do not excavate beyond the established limits. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

204.09 Preparing Foundation for Embankment Construction. Prepare foundation for embankment construction as follows:

(a) Embankment less than 4 feet high over natural ground. When designated, remove topsoil and break up the ground surface to a minimum depth of 6 inches by plowing or scarifying. Compact the ground surface according to Subsection 204.11.

(b) Embankments over an existing asphalt, concrete, or gravel road surface. Scarify gravel roads to a minimum depth of 6 inches. Scarify or pulverize asphalt and concrete roads to 6 inches below the pavement. Reduce all particles to a maximum size of 6 inches and produce a uniform material. Compact the surface according to Subsection 204.11.

(c) Embankment across ground not capable of supporting equipment. Dump successive loads of embankment material in a uniformly distributed layer to construct the lower portion of the embankment. Limit the layer thickness to the minimum depth necessary to support the equipment.

(d) Embankment on an existing slope steeper than 1V:3H. Cut horizontal benches in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Bench the slope as the embankment is placed and compacted in layers. Begin each bench at the intersection of the original ground and the vertical cut of the previous bench.

204.10 Embankment Construction. Incorporate only suitable roadway excavation material into the embankment. When the supply of suitable roadway excavation is exhausted, furnish unclassified borrow to complete the embankment. Obtain written approval before beginning construction of embankments over 6 feet high at subgrade centerline. Construct embankments as follows:

(a) General. At the end of each day's operations, shape to drain and compact the embankment surface to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

Compact embankment side slopes flatter than 1V:1.75H with a tamping type roller or by walking with a dozer. For slopes 1V:1.75H or steeper, compact the slopes as construction of the embankment progresses.

Where placing embankment on one side of abutments, wing walls, piers, or culvert headwalls, compact the material using methods that prevent excessive pressure against the structure.

Where placing embankment material on both sides of a concrete wall or box structure, conduct operations so compacted embankment material is at the same elevation on both sides of the structure.

Where structural pilings are placed in embankment locations, limit the maximum particle size to 4 inches.

(b) Embankment within the roadway prism. Place embankment material in horizontal layers not exceeding 12 inches in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch layers by reducing them in size or placing them individually as required by (c) below. Compact each layer according to Subsection 204.11 before placing the next layer.

Material composed predominately of boulders or rock fragments too large for 12-inch layers may be placed in layers up to 24 inches thick. Incorporate oversize boulders or rock fragments into the 24-inch layer by reducing them in size or placing them individually according to (c) below. Place sufficient earth and smaller rocks to fill the voids. Compact each layer according to Subsection 204.11 before placing the next layer.

(c) Individual rock fragments and boulders. Place individual rock fragments and boulders greater than 24 inches in diameter as follows:

- (1) Reduce rock to less than 48 inches in the largest dimension.
- (2) Distribute rock within the embankment to prevent nesting.
- (3) Place layers of embankment material around each rock to a depth not greater than that permitted by (b) above. Fill all the voids between rocks.
- (4) Compact each layer according to Subsection 204.11 before placing the next layer.

(d) Embankment outside of roadway prism. Where placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches in compacted thickness. Compact each layer according to Subsection 204.11.

204.11 Compaction. Compact the embankment using one of the following methods as specified:

(a) Compaction A. Use AASHTO T 27 to determine the amount of material retained on a Number 4 sieve. If there is more than 80 percent retained on the No. 4 sieve use procedure (1). If there is 50 to 80 percent retained on the No. 4 sieve use procedure (2). If there is less than 50 percent retained on the No. 4 sieve use procedure (3).

- (1) Adjust the moisture content to a level suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Use compression-type rollers at speeds

less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width with one of the following and until there is no visible evidence of further consolidation.

- (a) Four roller passes of a vibratory roller having a minimum dynamic force of 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.
- (b) Eight roller passes of a 20-ton compression-type roller.
- (c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches as follows:

- For each additional 6 inches or fraction thereof, increase the number of roller passes in (a) above by four passes.
- For each additional 6 inches or fraction thereof, increase the number of roller passes in (b) and (c) above, by eight passes.

(2) Use AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 sieve. Multiply this number by the percentage of material passing a No. 4 sieve, and add 2 percent to determine the optimum moisture content of the material. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width according to (1) above.

(3) Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 180, method D. For other material classifications, determine the optimum moisture content and maximum density according to AASHTO T 99, method C.

Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type or vibratory rollers. Compact each layer of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

(b) Compaction B. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Adjust the moisture content of the material to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Operate compaction equipment over the full width of each layer until there is no visible evidence of further

consolidation or, if when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

(c) **Compaction C.** Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

204.12 Ditches. Slope, grade, and shape ditches. Remove all projecting roots, stumps, rock, or similar matter. Maintain all ditches in an open condition and free from leaves, sticks, and other debris.

Form furrow ditches by plowing or using other acceptable methods to produce a continuous furrow. Place all excavated material on the downhill side so the bottom of the ditch is approximately 18 inches below the crest of the loose material. Clean the ditch using a hand shovel, ditcher, or other suitable method. Shape to provide drainage without overflow.

204.13 Sloping, Shaping, and Finishing. Complete slopes, ditches, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish as follows:

(a) **Sloping.** Leave all earth slopes with uniform roughened surfaces, except as described in (b) below, with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of all slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale all rock slopes. Slope rounding is not required on tolerance class D though M roads.

If a slide or slipout occurs on a cut or embankment slope, remove or replace the material, and repair or restore all damage to the work. Bench or key the slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

(b) **Stepped slopes.** Where required by the contract, construct steps on slopes of 1½V:1H to 1V:2H. Construct the steps approximately 18 inches high. Blend the steps into natural ground at the end of the cut. If the slope contains nonrippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks that may fall, scaling stepped slopes is not required.

(c) **Shaping.** Shape the subgrade to a smooth surface and to the cross-section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground.

(d) **Finishing.** Finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-2. Ensure that the subgrade is visibly

moist during shaping and dressing. Scarify to 6 inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed.

For unsurfaced roads, use one of the following methods to finish the roadbed:

- (1) **Method A.** Remove all material larger than 6 inches from the top 6 inches of the roadbed and replace with suitable material.
- (2) **Method B.** Use a vibratory grid roller or approved equal with a minimum weight of 10 tons. Roll at least 5 full-width passes or until there is no visible evidence of further consolidation.
- (3) **Method C.** For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or legally off of the project.

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

204.15 Acceptance. See Table 204-1 for sampling and testing requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Clearing and removal of obstructions will be evaluated under Sections 201 and 203.

Measurement

204.16 Measure the Section 204 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

(a) Roadway excavation. Measure roadway excavation in its original position as follows:

- (1) Include the following volumes in roadway excavation:
 - (a) Roadway prism excavation;
 - (b) Rock material excavated and removed from below subgrade in cut sections;
 - (c) Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
 - (d) Ditches, except furrow ditches measured under a separate bid item;
 - (e) Topsoil;
 - (f) Borrow material used in the work when a pay item for borrow is not shown in the

bid schedule;

- (g) Loose scattered rocks removed and placed as required within the roadway;
- (h) Conserved material taken from stockpiles and used in Section 204 work; and
- (i) Slide and slipout material not attributable to the Contractor's method of operation.

(2) Do not include the following in roadway excavation:

- (a) Overburden and other spoil material from borrow sources;
- (b) Overbreakage from the backslope in rock excavation;
- (c) Water or other liquid material;
- (d) Material used for purposes other than required;
- (e) Roadbed material scarified in place and not removed;
- (f) Material excavated when stepping cut slopes;
- (g) Material excavated when rounding cut slopes;
- (h) Preparing foundations for embankment construction;
- (i) Material excavated when benching for embankments;
- (j) Slide or slipout material attributable to the Contractor's method of operation;
- (k) Conserved material taken from stockpiles constructed at the option of the Contractor; and
- (l) Material excavated outside the established slope limits.

(3) When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:

- (a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
- (b) Slide and slipout material not attributable to the Contractor's method of operations; and
- (c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, select borrow, and select topping. When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden.

Do not measure borrow excavation used in place of excess roadway excavation.

(c) Embankment construction. Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

(1) Include the following volumes in embankment construction:

- (a) Roadway embankments;
- (b) Material used to backfill subexcavated areas, holes, pits, and other depressions;
- (c) Material used to restore obliterated roadbeds to original contours; and
- (d) Material used for dikes, ramps, mounds, and berms.

(2) Do not include the following in embankment construction:

- (a) Preparing foundations for embankment construction;
 - (b) Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and
 - (c) Material used to round fill slopes.
- (d) Rounding cut slopes.** Measure rounding cut slopes horizontally along the centerline of the roadway if a pay item for slope rounding is included in the bid schedule. If a pay item for slope rounding is not included in the bid schedule slope rounding will be considered subsidiary to excavation.
- (e) Waste.** Measure waste by the cubic yard in its final position. Take initial cross-sections of the ground surface after stripping over burden. Upon completion of the waste placement, retake cross-sections before replacing overburden.
- (f) Slope scaling.** Measure slope scaling by the cubic yard in the hauling vehicle.

Payment

204.17 The accepted quantities will be paid at the contract price per unit of measurement for the Section 204 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Table 204-1
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|---|--|------------------|----------|--|--|---|---------------------|---------------------------|
| Topping (704.05) & unclassified borrow (704.06) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type | Processed material before incorporating in work | Yes, when requested | Before using in work |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 6000 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |
| Select borrow (704.07 & Select topping (704.08) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type but not less than 1 for each day of production | Processed material before incorporating | Yes, when requested | Before using in work |
| | | Gradation | — | AASHTO T 27 | “ | “ | “ | “ |
| | | Liquid limit | — | AASHTO T 89 | “ | “ | “ | “ |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 6000 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |

(1) Minimum of 5 points per proctor

Table 204-1 (continued)
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|---|--|------------------|----------|--|--|--------------------|---------------------|---------------------------|
| Earth embankment (204.11, Compaction A) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type | Source of Material | Yes, when requested | Before using in work |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per 13,000 yd ³ | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 3500 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |
| Top of subgrade (204.11 Compaction A) | Measured and tested for conformance (106.04) | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 2500 yd ² | In-place | — | Before placing next layer |

(1) Minimum of 5 points per proctor.

**Table 204-2
Construction Tolerances**

| | Tolerance Class ^(a) | | | | | | | | | | | | |
|--|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| Roadbed width (ft) | +0.5 | +0.5 | +1.0 | +1.0 | +1.0 | +1.0 | +1.5 | +1.0 | +2.0 | +2.0 | +2.0 | +2.0 | +2.0 |
| Subgrade elevation (ft) | ±0.1 | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±2.0 | ±3.0 | ±2.0 | ±3.0 | (c) |
| Centerline alignment (ft) | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±1.5 | ±2.0 | ±3.0 | ±3.0 | ±5.0 | (c) |
| Slopes, excavation, and embankment ^{(a), class (b)} | ±3 | ±5 | ±5 | ±5 | ±5 | ±5 | ±10 | ±10 | ±10 | ±10 | ±20 | ±20 | ±20 |

(a) Maximum allowable deviation from construction stakes and drawings.

(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 feet of length.

204.03 Materials

Add the following:

Structural backfill

704.04

303 - Road Reconditioning

303.01_nat_us_03_02_2005

303.01 Work.

Delete and add the following:

This work consists of reconditioning ditches, shoulders, roadbeds, cattleguards, asphalt surfaces, and aggregate surfaces.

303.06_nat_us_08_05_2008

303.06 Aggregate Surface Reconditioning.

Delete and replace with the following:

303.06 Asphalt and Aggregate Surface Reconditioning.

Repair soft and unstable areas to the full depth of the aggregate surface and according to Subsection 204.07. Scarify to the depth of the aggregate surface or to a depth of 6 inches, whichever is less, and remove surface irregularities. Reshape, finish, and compact the entire aggregate surface according to Subsection 301.05, Subsection 321.05, or Subsection 322.05 as applicable.

For asphalt surfaces, clean the existing surface of all loose material, dirt, or other deleterious substances by approved methods. Remove and dispose of unsuitable material that shows evidence of distress, excess asphalt material, or settlement in the roadbed. Patch the areas with approved material that conforms to and is compatible with the adjacent pavement structure. Perform the patch work according to Section 301, 404, 430, or other sections as applicable for the layer or courses being repaired. Clean and seal cracks in the existing asphalt surface according to Subsection 414.05. Correct surface irregularities exceeding 6 inches in depth with a specified aggregate. Place and compact the aggregate according to Subsections 301.04 and 301.05. Prelevel other dips, depressions, sags, excessive or nonexistent crown, or other surface irregularities with asphalt concrete according to Section 404. Spread and compact the asphalt concrete in layers parallel to the grade line not to exceed 2 inches in compacted depth.

303.08_0618_us_03_26_2007

303.08 Pulverizing.

Delete and add the following:

Scarify and pulverize the full depth of existing bituminous surfacing, plus an additional 2 inch penetration into the existing base aggregate as designated. Pulverize until the material is reduced to a maximum size of 1 1/2 inches. Incorporate the bituminous material and base aggregate into

the traveled way and shoulders. Compact the material as specified in Subsection 204.11 (a) (1). Finish the surface according to Subsection 301.06.

303.10_0618_us_03_26_2007

303.10 Measurement

Remove and replace the first sentence in the third paragraph with the following:

Measure roadbed reconditioning, aggregate surface reconditioning, roadway reconditioning, and pulverizing by the mile, by the foot, by the station or by the square yard.

322 - Minor Aggregate Courses

322.00_nat_us_10_14_2011

Description

322.01 This work consists of constructing one or more courses of aggregate on a prepared surface. Work includes producing aggregate by grid rolling, screening, or crushing methods, or placing pit-run or Government-furnished aggregate.

Surface aggregate grading is designated as shown in Table 703-3.

Subbase and base aggregate grading is designated as shown in Table 703-2.

Screened aggregate grading is designated as shown in Table 703-16.

Material

322.02 Conform to the following Subsections:

| | |
|-----------|--------|
| Aggregate | 703.05 |
| Water | 725.01 |

Construction Requirements

322.03 General. Prepare the surface on which the aggregate course is placed according to Section 204 or 303 as applicable.

Request approval of the roadbed in writing before placing aggregate.

Develop, haul, and apply water in accordance to Section 170.

Submit target values within the gradation ranges shown in Table 703-2 or 703-3 for the required grading. After reviewing the proposed target values the CO will determine the final values for the gradation and notify the Contractor in writing.

No quality requirements or gradation other than maximum size will be required for pit run and grid-rolled material. For grid rolling, use all suitable material that can be reduced to maximum size.

After processing on the road, remove all oversize material from the road and dispose of it as directed by the CO.

If the aggregate is produced and stockpiled before placement, handle and stockpiled according to Section 320. Establish stockpile sites at approved locations.

322.04 Mixing and Spreading. Mix the aggregate and adjust the moisture content to obtain a uniform mixture with a moisture content suitable for the specified compaction method. Spread and shape the mixture on the prepared surface in a uniform layer with no segregation of size, and to a loose depth that will provide the required compacted thickness.

Do not place in layers exceeding 6 inches in compacted thickness for aggregate base and surface courses or twice the maximum particle size for screened aggregate. When more than one layer is necessary, compact each layer according to Subsection 322.05 before placing the next layer. Route hauling and leveling equipment uniformly over the full width.

When placing aggregate over geotextile, place aggregate in a single lift to the full depth specified.

322.05 Compacting. Compact each layer full width. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and all places not accessible to the roller, compact the material with approved tampers or compactors.

Compact the aggregate using one of the following methods as specified:

Compaction A. Operating spreading and hauling equipment over the full width of the travelway.

Compaction B. Operate rollers and compact as specified in Subsection 204.11(a)(1).

Compaction C. Moisten or dry the aggregate to a uniform moisture content between 5 and 7 percent based on total dry weight of the mixture. Operate rollers and compact as specified in Subsection 204.11(a)(1).

Compaction D. Compact to a density of at least 95 percent of the maximum density, as determined by AASHTO T 99, method C or D.

Compaction E. Removed.

Compaction F. Compact to a density of at least 95 per-cent of the maximum density, as determined by AASHTO T 180, method C or D.

Compaction G. Removed.

For all compaction methods, blade the surface of each layer during the compaction operations to remove irregularities and produce a smooth, even surface. When a density requirement is specified, determine the in place density and moisture content according to AASHTO T 310 or other approved test procedures.

322.06 Construction Tolerance. If grade finishing stakes are required, finish the surface to within ± 0.10 feet from staked line and grade elevation.

If grade finishing stakes are not required, shape the surface to the required template and check the surface with a 10-foot straightedge. Defective areas are surface deviations in excess of 1/2 inch in 10 feet between any two contacts of the straightedge with the surface.

Correct all defective areas by loosening the material, adding or removing material, reshaping, and compacting.

Ensure that the compacted thickness is not consistently above or below the specified thickness. The maximum variation from the compacted specified thickness is 1/2 inch.

Ensure that the compacted width is not consistently above the specified width. The maximum variation from the specified width will not exceed +12 inches at any point.

322.07 Maintenance. Maintain the aggregate course to the correct line, grade, and cross-section by blading, watering, rolling, or any combination thereof until placement of the next course. Correct all defects according to Subsection 322.06.

322.08 Acceptance. See Table 322-1 or Table 322-2 as applicable, for sampling and testing requirements.

Aggregate gradation and surface course plasticity index will be evaluated under Subsection 106.04. If the aggregate is obtained from a Government stockpile then the above characteristics will be evaluated under Subsection 106.02. Other aggregate quality properties will be evaluated under Subsections 106.02 and 106.04. Placement of aggregate courses will be evaluated under Subsections 106.02 and 106.04.

The allowable upper and lower aggregate gradation limits are the Target Value plus or minus the allowable deviations shown in Tables 703-2 and 703-3.

The allowable upper and lower Plasticity index limits for surface courses are stated in 703.05(b).

Preparation of the surface on which the aggregate course is placed will be evaluated under Section 204 or 303 as applicable.

Measurement

322.09 Measure the Section 322 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Measure square yard width horizontally to include the top of aggregate width including designed widening. Measure the square yard length horizontally along the centerline of the roadway.

Slow DXP Timber Sale

If the measurement for aggregate is by cubic yard using contract quantities then measure aggregate by the cubic yard in-place once compacted, otherwise measurement for aggregate by the cubic yard is measured by the cubic yard in the hauling vehicle.

Measure thickness perpendicular to the grade of the travelway.

Measure width perpendicular to the centerline.

Payment

322.10 The accepted quantities will be paid at the contract price per unit of measurement for the Section 322 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Table 322-1
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time | |
|------------------------------------|--|---|----------|-----------------------------|---------------------------------|---|---------------------|----------------------|---|
| Aggregate source quality 703.05 | Measured and tested for conformance (106.04 & 105) | LA abrasion (coarse) | — | AASHTO T 96 | 1 per type & source of material | Source of material | Yes, when requested | Before using in work | |
| | | Sodium sulfate soundness loss (coarse & fine) | — | AASHTO T 104 | “ | “ | “ | “ | |
| | | Durability index (coarse & fine) | — | AASHTO T 210 | “ | “ | “ | “ | “ |
| | | Fractured faces | — | ASTM D 5821 | “ | “ | “ | “ | “ |
| Subbase, Base, and Surface courses | Measured and tested for conformance (106.04) | Sample | — | AASHTO T 2 | 2 per day | From windrow or roadbed after processing or from approved crusher sampling device | Yes | 48 hours | |

| Table 322-1 (continued) | | | | | | | | |
|--|--|---------------------------|-----------------|---|-----------------------------------|--------------------------|---------------------|---------------------------|
| Sampling and Testing Requirements | | | | | | | | |
| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
| Subbase, Base, and Surface | Measured and tested for conformance (106.04) | Moisture-density Method D | — | AASHTO T 99 (1) | 1 per type and source of material | Source of material | Yes, when requested | Before using in work |
| | | | | — | “ | “ | “ | “ |
| | | | | AASHTO T 180(1) | “ | “ | “ | “ |
| | | | | — | “ | “ | “ | “ |
| | | | | AASHTO T 310 or other approved procedures | 3 per day | In-place | — | Before placing next layer |

(1) Minimum of 5 points per proctor.

**Table 322-2
Sampling and Testing Requirements**

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|----------------------------|--|-----------------------|-----------------|------------------------------------|---------------------------|---|---------------------|-----------------------|
| Screened Aggregate | Measured and tested for conformance (106.04) | Sample | — | AASHTO T 2 | 2 per day | From windrow or roadbed after processing or from approved crusher sampling device | Yes | 48 hours |

625 - Turf Establishment

625.05_nat_us_03_30_2005

625.05 Watering.

Delete the entire subsection

625.06_0618_us_09_17_2008

625.06 Fertilizing.

Delete the entire subsection

625.07_0618_us_09_17_2008

625.07 Seeding. (b) Hydraulic method.

Add the following:

Apply seed mixture at the rate of 30 pounds of live seed per acre to the roadway, side slopes, waste areas, stream banks, and any other disturbed sites.

625.08_0618_us_01_25_2016

635 - Temporary Traffic Control

635.03_nat_us_05_13_2004

635.03 General.

Add the following:

Install temporary traffic control signs to temporary posts or approved temporary sign mounts.

703 - Aggregate

703.05_nat_us_08_14_2009

Delete 703.05 and replace with the following:

703.05 Subbase, Base, Surface Course, and Screened Aggregate.

(a) Subbase or base aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

| | |
|---|-------------|
| (1) Gradation | Table 703-2 |
| (2) Liquid limit, AASHTO T 89 | 25 max. |
| (3) Plastic limit, AASHTO T 90 | Nonplastic |
| (4) Los Angeles abrasion, AASHTO T 96 | 40% max. |
| (5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104 | 12% max. |
| (6) Durability index (coarse), AASHTO T 210 | 35 min. |
| (7) Durability index (fine), AASHTO T 210 | 35 min. |
| (8) Fractured faces, ASTM D 5821 | 50% min. |
| (9) Free from organic matter and lumps or balls of clay | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(b) Surface course aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

| | |
|---|-------------|
| (1) Gradation | Table 703-3 |
| (2) Liquid limit, AASHTO T 89 | 35 max. |
| (3) Plastic Index, AASHTO T 90 | |
| a) If the percent passing the No. 200 sieve is less than 12% | 2 to 9 |
| b) If the percent passing the No. 200 sieve is greater than 12% | Less than 2 |
| (4) Los Angeles abrasion, AASHTO T 96 | 40% max. |
| (5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104 | 12% max. |
| (6) Durability index (coarse), AASHTO T 210 | 35 min. |
| (7) Durability index (fine), AASHTO T 210 | 35 min. |
| (8) Fractured faces, ASTM D 5821 | 75% min. |
| (9) Free from organic matter and lumps or balls of clay | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Do not furnish material that contains asbestos fibers.

Slow DXP Timber Sale

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(c) Screened aggregate – Furnish hard, durable particles or fragments of stone, slag, or gravel conforming the following:

- | | |
|---|--------------|
| (1) Gradation | Table 703-16 |
| (2) Plastic Index, AASHTO T 90 | Less than 9 |
| (3) Los Angeles abrasion, AASHTO T 96 | 55% max. |
| (4) Free from organic matter and lumps or balls of clay. | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary.

Delete Table 703-2 and replace with the following:

Table 703-2
Target Value Ranges for Subbase and Base Gradation
Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)

| Sieve Size | Gradation Designation | | | | |
|------------|-----------------------|----------------|---------------|---------------|---------------|
| | A (Subbase) | B (Subbase) | C (Base) | D (Base) | E (Base) |
| 3 inch | 100 | | | | |
| 2 inch | 65 - 95 | 100 | 100 | | |
| 1½ inch | | 97 - 100 | | | |
| 1 inch | | | 80 - 100 (6) | 100 | |
| ¾ inch | 40 - 75 | | 64 - 94 (6) | 86 - 100 (6) | 100 |
| ½ inch | | | | | |
| ⅜ inch | | | 40 - 69 (6) | 51 - 82 (6) | 62 - 90 (6) |
| No. 4 | 22 - 45 | 40 - 60 (8) | 31 - 54 (6) | 36 - 64 (6) | 36 - 74 (6) |
| No. 40 | 8 - 22 | | | 12 - 26 (4) | 12 - 26 (4) |
| No. 200 | 2 - 10 | 4.0 - 12.0 (4) | 4.0 - 7.0 (3) | 4.0 - 7.0 (3) | 4.0 - 7.0 (3) |

() The value in the parentheses is the allowable deviation (±) from the target values..

Note: Allowable deviations (±) from TV are shown in parentheses. If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 6-12 (4).

Delete Table 703-3 and replace with the following:

**Table 703-3
Target Value Ranges for Surface Gradation**

| Sieve Size | Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11) | | | | | |
|------------|---|-----------------|----------------|----------------|----------------|----------------|
| | Gradation Designation | | | | | |
| | F | G | H | S | T | U |
| 1 1/2 inch | 100 | | | 100 | | |
| 1 inch | 97-100 | 100 | | 72 - 92 (6) | 100 | |
| 3/4 inch | 76-89 (6) | 97 - 100 | 97 - 100 | | | 100 |
| 1/2 inch | | | | | 71 - 91 (6) | |
| 3/8 inch | 56-68 (6) | 70 - 80 (6) | 80 - 92 (6) | 51 - 71 (6) | | 71 - 90 (6) |
| No. 4 | 43-53 (7) | 51 - 63 (7) | 58 - 70 (7) | 36 - 53 (7) | 43 - 60 (7) | 50 - 68 (7) |
| No. 8 | | | | 26 - 40 (6) | 30 - 46 (6) | 34 - 51 (6) |
| No. 16 | 23-32 (6) | 28 - 39 (6) | 28 - 40 (6) | | | |
| No. 40 | 15-23 (5) | 19 - 27 (5) | 16 - 26 (5) | 14 - 25 (5) | 16 - 28 (5) | 19 - 30 (5) |
| No. 200 | 10.0-16.0 (4) | 10.0 - 16.0 (4) | 9.0 - 14.0 (4) | 8.0 - 15.0 (4) | 8.0 - 15.0 (4) | 8.0 - 15.0 (4) |

() The value in the parentheses is the allowable deviation (±) from the target values.
If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 8-12 (4).

Add Table 703-16:

Table 703-16

Gradation Requirements for Screened Aggregate

| Sieve Size | Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11) | | | | | | |
|------------|---|-------|-----|-------|-----|-------|-----|
| | Grading Designation | | | | | | |
| | L | M | N | O | P | Q | R |
| 6 inch | 100 | 100 | | | | | |
| 4 inch | | | 100 | 100 | | | |
| 3 inch | | | | | 100 | 100 | |
| 2 inch | | | | | | | 100 |
| No. 4 | | 15-45 | | 15-45 | | 15-45 | |

703.05 Subbase, Base, & Surface Course Aggregate (Pit Run).

Add the following to Tables 703-2:

| % by Weight Passing Designated Sieve (AASHTO T11 and T-27) | | | | | | | |
|---|-----|-------|-----|-------|-----|-------|-----|
| Grading Designation | | | | | | | |
| Sieve Size | L | M | N | O | P | Q | R |
| 6 in. | 100 | 100 | | | | | |
| 4 in. | | | 100 | 100 | | | |
| 3 in. | | | | | 100 | 100 | |
| 2 in. | | | | | | | 100 |
| No. 4 | | 15-45 | | 15-45 | | 15-45 | |

Note: For Grading M, O, and Q the allowable deviations (+/-) from the TV are to the broad band limits.

Table 703-2 Correction

Include the following substitution

In Table 703-2, delete the “436 – 74 (6)” percent by mass passing for grading E (base) No. 4 sieve size and substitute “36 – 74 (6).”

703.10(e) Flakiness Index.

Delete and replace with the following:

Flakiness Index, FLH T 508 30% max.

703.10(i) Adherent Coating.

Add the following:

Adherent coating on the aggregate, FLH T 512 0.5% max.

718 - Traffic Signing and Marking Material

718.02_nat_us_03_02_2005

718.02 Reserved.

Replace this section with the following:

718.02 Protective Overlay Film and Edge Film.

Protective overlay film will be a high performance fluouropolymer film such as 3M Scotchlite Premium Protective Overlay Film Series 1160 or approved equal.

Edge film will be a pressure-sensitive, premium-quality, clear, ultraviolet-resistant, 3 inches wide vinyl film.

718.05_nat_us_08_05_2009

718.05 Aluminum Panels

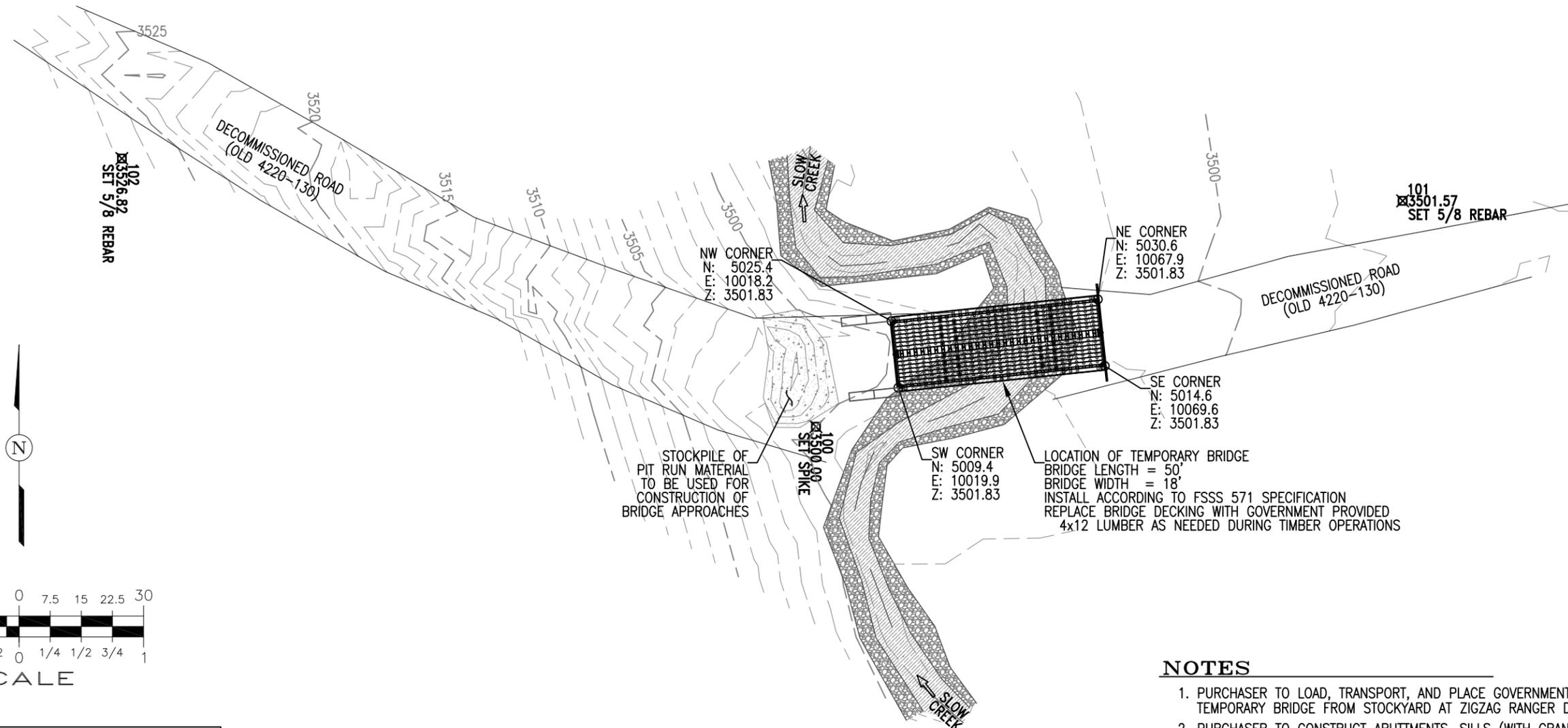
Delete the third paragraph and replace with the following:

Clean, degrease and properly prepare the panels according to methods recommended by the sheeting manufacturer. Conversion coatings will conform to ASTM B-921 or ASTM B-449.

Attachment

E

PLANS AND SPECIFICATIONS PURSUANT TO C5.1# (OPTION1) - TEMPORARY ROAD AND LANDING CONSTRUCTION (7/01)



BRIDGE PLAN

NOTES

1. PURCHASER TO LOAD, TRANSPORT, AND PLACE GOVERNMENT PROVIDED TEMPORARY BRIDGE FROM STOCKYARD AT ZIGZAG RANGER DISTRICT OFFICE.
2. PURCHASER TO CONSTRUCT ABUTMENTS, SILLS (WITH CRANE MAT AND BASE PLATE), BACKWALL, AND APPROACHES UTILIZING MATERIALS ON SITE AND PURCHASER PROVIDED COMMERCIAL SOURCE MATERIALS.
3. PLACE BRIDGE ACCORDING FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS SECTION 571.
4. CONSTRUCT BRIDGE APPROACHES AT MINIMUM 3% APPROACH GRADE TO DRAIN WATER AWAY FROM BRIDGE.
5. INSTALLATION CONSTRUCTION AND PLACEMENT OF BRIDGE MUST TAKE PLACE WITHIN THE PRESCRIBED OREGON DEPARTMENT OF FISH & WILDLIFE IN-STREAM WORK WINDOW, WHICH BEGINS ON JULY 15th AND ENDS ON AUGUST 31st.
6. DISPOSE OF VEGETATIVE DEBRIS RESULTING FROM OPERATIONS ACCORDING TO SPECIFICATIONS SUBSECTION 203.05 (f).
7. PURCHASER IS RESPONSIBLE FOR MAINTAINING THE BRIDGE DURING USE. THE PURCHASER MAY UTILIZE GOVERNMENT PROVIDED MATERIALS FROM AN EXISTING STOCKPILE OF 4"x12" DIMENSIONAL LUMBER (KEPT NEXT TO THE BRIDGE AT THE ZIGZAG STOCKYARD) TO MAINTAIN BRIDGE DECKING AS NEEDED, BUT IS RESPONSIBLE FOR PROVIDING COMMERCIAL SOURCE MATERIALS AS NEEDED ONCE THIS STOCKPILE IS EXHAUSTED.
8. PURCHASER IS RESPONSIBLE FOR WINTERIZING THE BRIDGE EACH YEAR PRIOR TO THE WET SEASON. WINTERIZATION OF THE BRIDGE INVOLVES SECURING TARPS OR PLASTIC SHEETING BOTH OVER AND UNDER THE BRIDGE (FULL WRAP) TO PROTECT THE STREAM COURSE DURING PERIODS OF NON-USE.
9. AT COMPLETION OF OPERATIONS THE PURCHASER SHALL REMOVE THE BRIDGE, RESHAPE THE STREAM CHANNEL AND STREAM BANKS TO THEIR PRE-EXISTING CONDITION, THEN HAUL THE BRIDGE TO THE ZIGZAG STOCKYARD.
10. REMOVAL OF THE BRIDGE MUST TAKE PLACE WITHIN THE PRESCRIBED ODF&W IN-STREAM WORK WINDOW AS DEFINED ABOVE.

SURVEY SITE CONTROL

| | 100 | 101 | 102 |
|------------|----------|----------|---------|
| NORTHING: | 5000.00 | 5054.28 | 5064.45 |
| EASTING: | 10000.00 | 10141.39 | 9832.72 |
| ELEVATION: | 3500.00 | 3501.57 | 3526.82 |
| STATION: | ----- | ----- | ----- |
| OFFSET: | ----- | ----- | ----- |

NOTES:
 5/8 REBAR CONTROL POINTS ARE 30 INCH IRON RODS PROTRUDING 0.1 FEET ABOVE SURFACE ELEVATION, WITH RED PLASTIC CAPS.
 CONTROL POINT 100 WAS ESTABLISHED WITH ASSUMED COORDINATES AND ASSUMED ELEVATION.
 BASIS OF BEARINGS WAS ESTABLISHED BY MAGNETIC COMPASS READING FROM POINT 100 TO POINT 102, ADJUSTED FOR MAGNETIC DECLINATION
 BASIS OF BEARINGS 100 TO 102 = N69°E
 COORDINATES FOR ALL OTHER CONTROL POINTS WERE ESTABLISHED RELATIVE TO CONTROL POINT 100 USING THE ESTABLISHED BASIS OF BEARINGS.

LEGEND

- ☒ SURVEY CONTROL POINT
- 3000--- EXISTING INDEX CONTOUR
- EXISTING MINOR CONTOUR
- CENTERLINE OF STREAM
- EDGE OF EXISTING ROADWAY
- ▨ STREAM CHANNEL

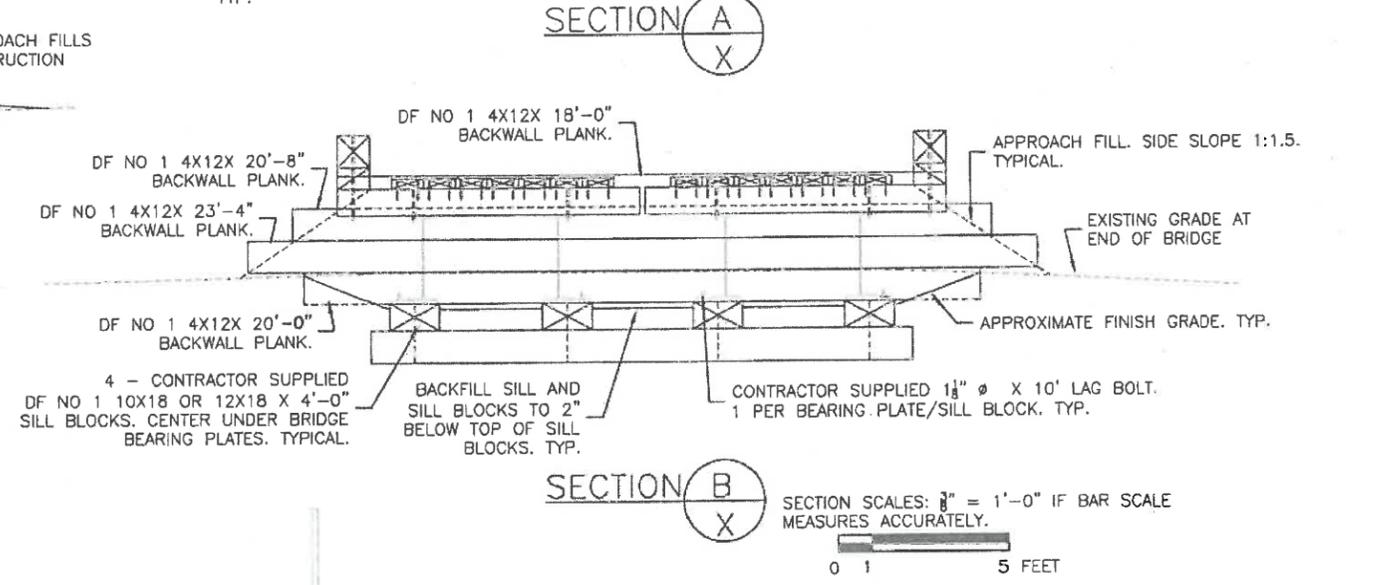
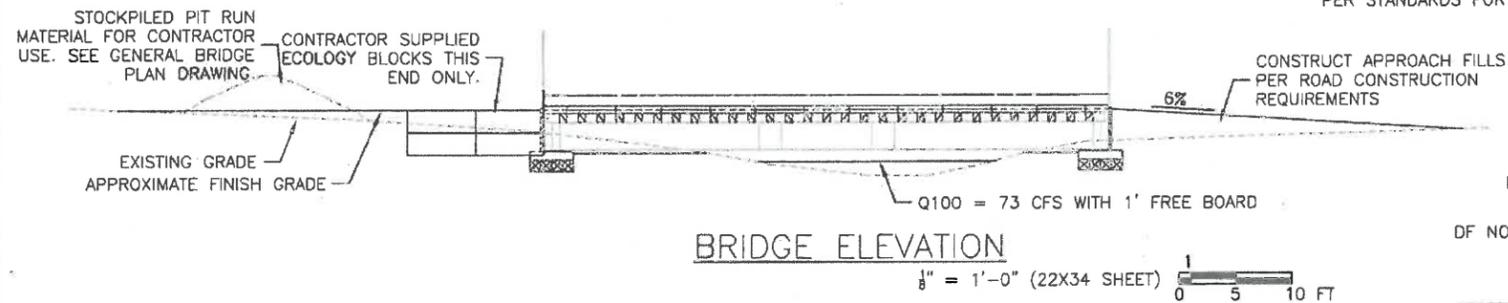
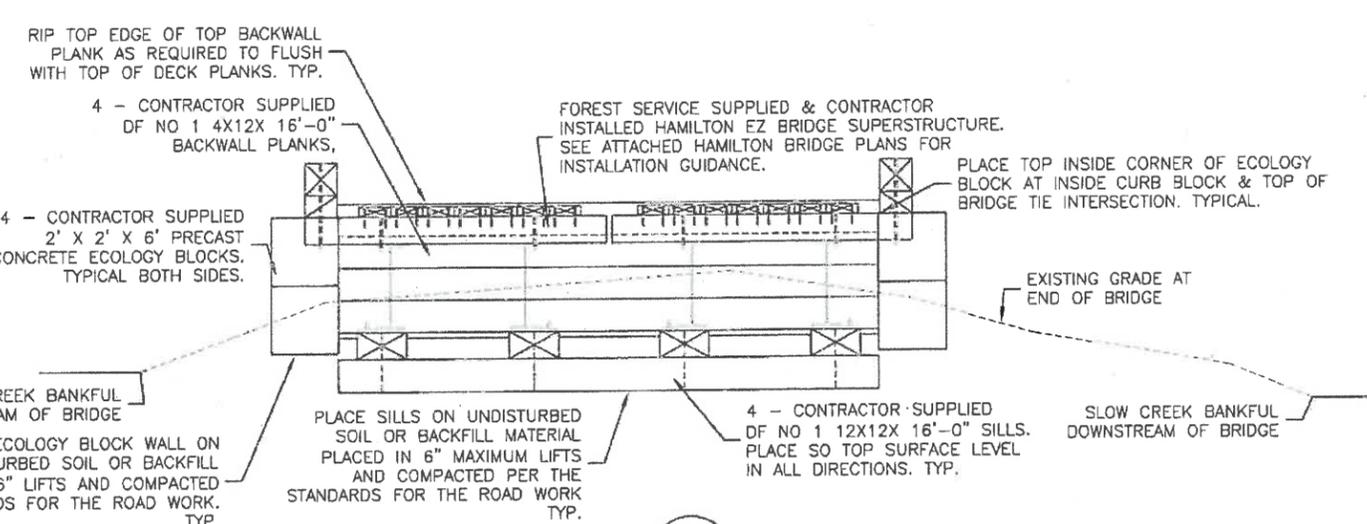
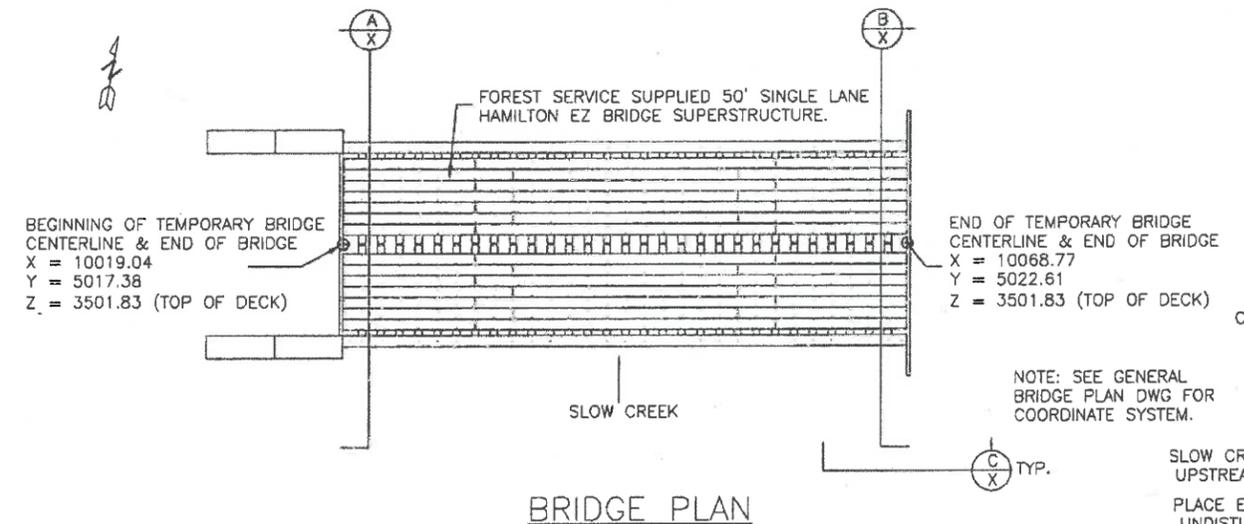
| | |
|--------------|-------------|
| | DESCRIPTION |
| REV. DATE | |
| DESIGNED BY: | L. JIMENEZ |
| DRAWN BY: | L. JIMENEZ |
| CHECKED BY: | J. CASWELL |
| SCALE: | 1" = 30' |

USDA FOREST SERVICE
The Pacific Northwest Region

MT. HOOD NATIONAL FOREST
16400 Champion Way
Sandy, OR 97055

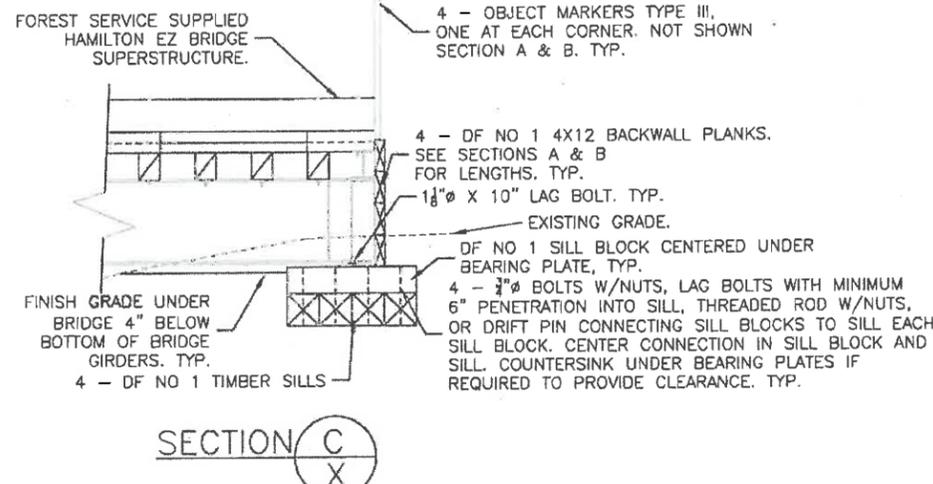
| | |
|--|--|
| Project: Slow Dxp Timber Sale Temporary Creek Crossing | Sheet Title: TEMPORARY BRIDGE PLAN |
|--|--|

SHEET



GENERAL NOTES

SPECIFICATIONS:
DESIGN: SUBSTRUCTURE PER "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 7TH EDITION, 2014. SUPERSTRUCTURE DESIGNED AND FABRICATED BY HAMILTON BRIDGE CONSTRUCTION, 1978.
CONSTRUCTION: "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, (FP-03), 2003 WITH SUPPLEMENTAL SPECIFICATIONS.
SUBSTRUCTURE DESIGN:
DEAD LOAD: CONCRETE AT 150 PCF, STEEL AT 490 PCF, EARTH PRESSURE AT AN EQUIVALENT FLUID WEIGHT OF 36 PCF, EARTH AT 120 PCF, WOOD AT 50 PCF.
LIVE LOAD: AASHTO HL93 WITH IMPACT;
METHOD: LOAD RESISTANCE FACTOR DESIGN METHOD.
ALLOWABLE STRESSES: ALLOWABLE STRESSES IN ACCORDANCE WITH DESIGN SPECIFICATIONS ABOVE.
MATERIALS:
STRUCTURAL STEEL: STRUCTURAL STEEL SHALL CONFORM TO AASHTO M183 (ASTM A36). HOT DIP GALVANIZE ALL EXPOSED STRUCTURAL STEEL AFTER FABRICATION ACCORDING TO AASHTO M111. HOT DIP GALVANIZE EXPOSED STEEL FASTENERS, BOLTS, NUTS, AND HARDWARE ACCORDING TO AASHTO M232.
TIMBERS & LUMBER: UNTREATED DOUGLAS FIR OF THE FOLLOWING GRADES: ALL - NO. 1.
ECOLOGY BLOCKS: ECOLOGY BLOCKS TO BE MANUFACTURED AT A CONCRETE PLANT THAT ROUTINELY PRODUCES ECOLOGY BLOCKS.
FOUNDATION INVESTIGATION: NO SUBSURFACE INVESTIGATION CONDUCTED. VISUAL SOIL CLASSIFICATION SANDY/SILT ESTIMATED BEARING CAPACITY = 2,000 PSF.
HYDROLOGY AND HYDRAULICS: THIS BRIDGE IS DESIGNED TO PASS A 100-YEAR FLOOD EVENT OF 73 CFS WITH 1 FOOT FREEBOARD.
STRUCTURE TYPE: TEMPORARY BRIDGE WITH DESIGN LIFE OF 3 YEARS ON ROAD CLOSED TO THE PUBLIC FOR USE ON A TIMBER SALE. BRIDGE TO BE REMOVED AFTER 3 YEARS.



-REDUCED-
DO NOT SCALE DRAWING

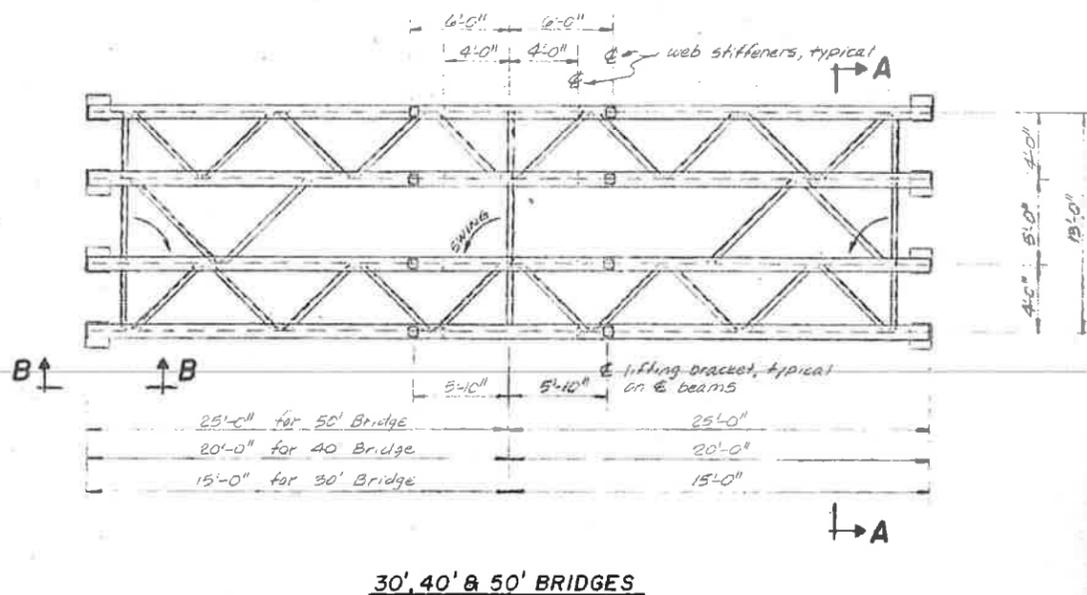
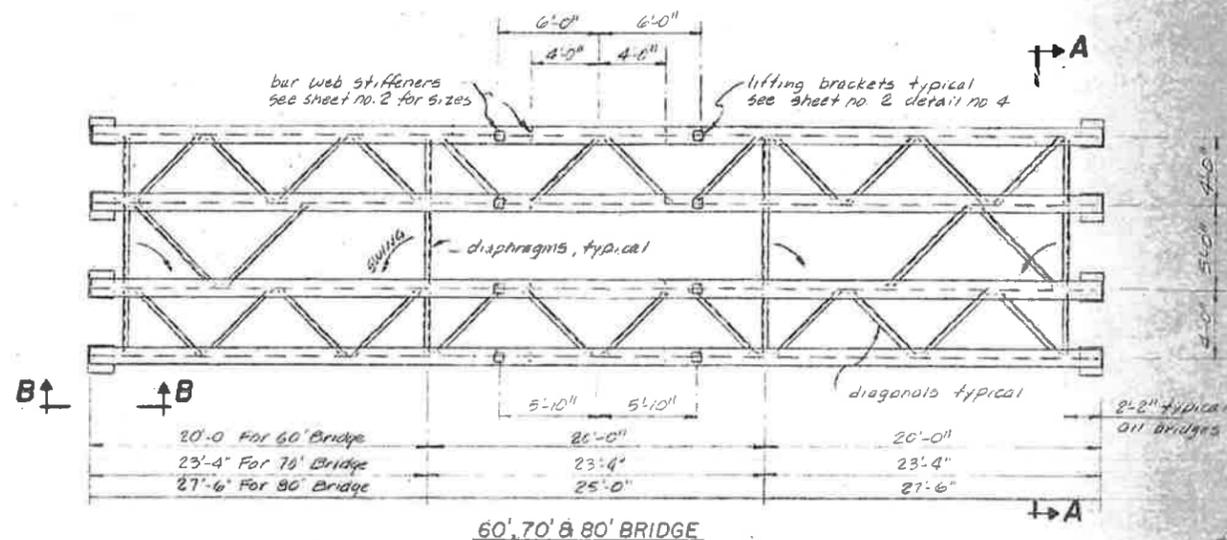
| REV. | DESCRIPTION | APPROVED | DATE |
|------|-------------|----------|------|
| | | | |
| | | | |
| | | | |
| | | | |

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
 THE PACIFIC NORTHWEST REGION (R-6)

SLOW_CK_TIMBER_SALE
TEMPORARY BRIDGE
PLAN_PROFILE_SECTIONS_NOTES

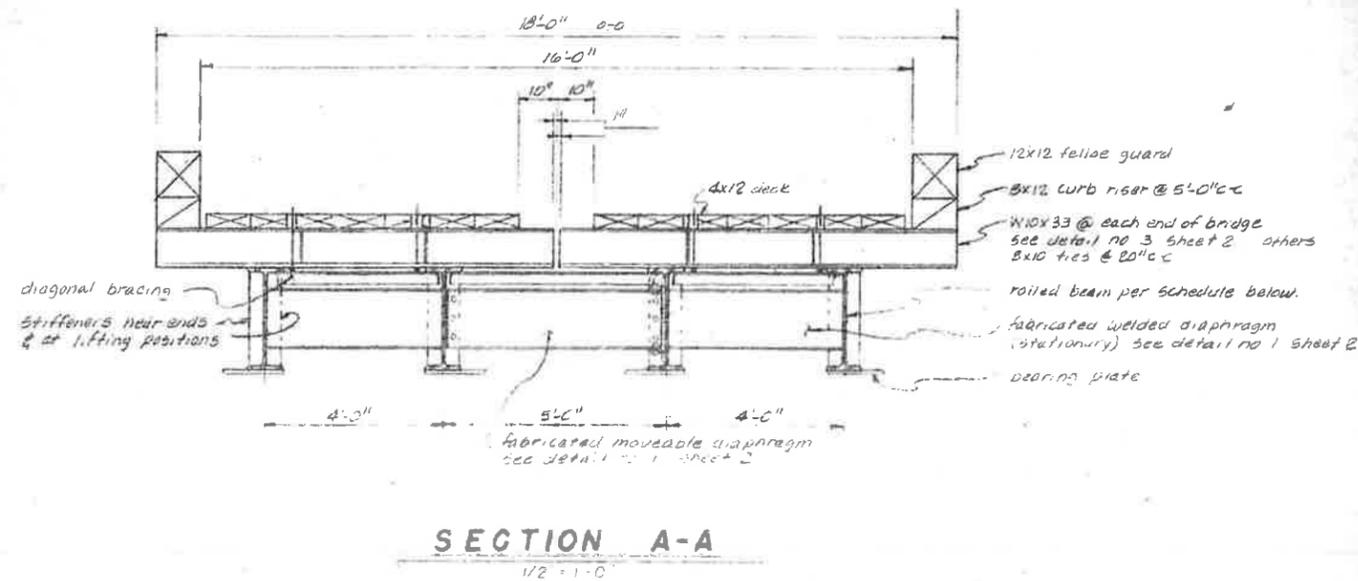
Forest: MTHOOD Loading: SUBSTRUCTUREHL93
 Bridge No.: TEMPORARY Length: 50'
 Location: T85,R8E,S1 Width: 16'

Designed: WLB Drawn: WLB Checked: KYL
 Technical Approval: *Kathryn L. Van Hise* Date: 4/23/2016
 REGIONAL BRIDGE ENGINEER
 Approved: *Jose L. Lewis* Date: 6/27/16
 DIRECTOR OF ENGINEERING



PLAN

3/16" = 1'-0"



Notes not shown for clarity.

BEAM SCHEDULE

| BRIDGE | ROLLED BEAM | 1/2 BR. WT. | TOTAL WT. |
|--------|-------------|-------------------|--------------------|
| 30' | W24x68 | 16.1 ^k | 32.0 ^k |
| 40' | W27x84 | 22.3 ^k | 44.5 ^k |
| 50' | W30x116 | 30.7 ^k | 61.2 ^k |
| 60' | W36x135 | 38.9 ^k | 77.8 ^k |
| 70' | W36x170 | 46.5 ^k | 92.6 ^k |
| 80' | W36x210 | 53.9 ^k | 128.0 ^k |

NOTES:

- All structural steel shall be ASTM A-533 Steel.
- All structural bolts shall be ASTM 305 weathering bolts, all others ASTM A-307
- All ties shall be done no 1 grade or better and shall be drilled for all connections before "pena" treatment.
- The 4x12 decking shall be no 2 or better.
- The felloe guard and riser shall be no 2 and shall be drilled for all connections before "pena" treatment.
- Ties, running planks, curb riser and felloe guard details shall be as determined by HAMILTON CONSTRUCTION COMPANY.

DEC 13 1979

U.S. Patent No. 4073025 Dwg. Revised 9/78

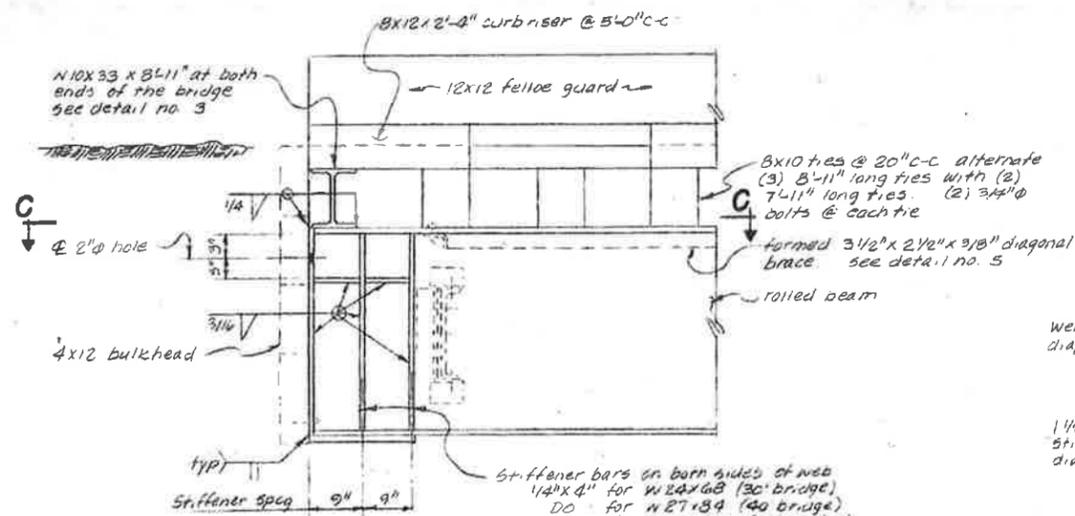
OREGON BRIDGE ENGINEERING COMPANY
CONSULTING ENGINEERS SPRINGFIELD OREGON

1978 ALASKA "E-Z" BRIDGES
HAMILTON CONSTRUCTION COMPANY
SPRINGFIELD, OREGON

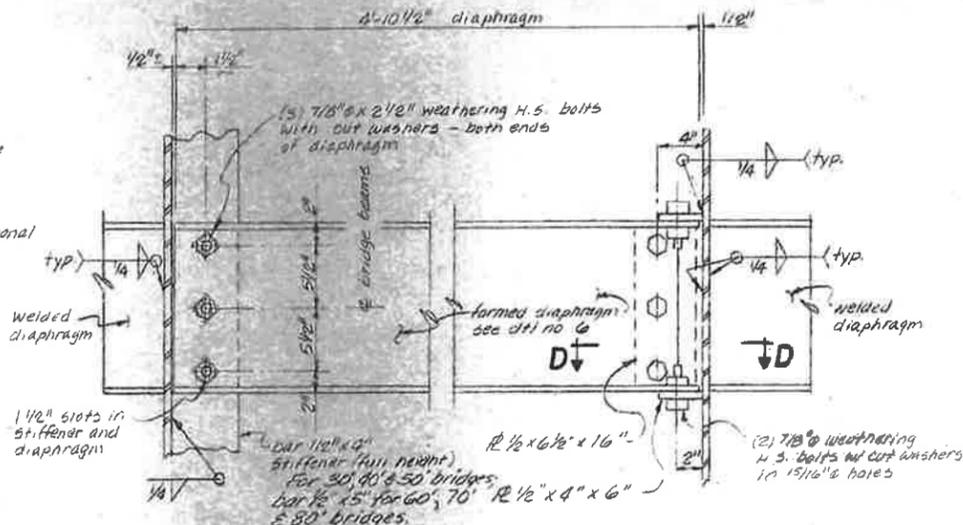
30', 40', 50', 60', 70' & 80' Bridges-PLAN

DRAWN AL K. CHK'D. PROJECT NO 5-200 DWG NO 1 of 2
DESIGNED AL K. APPROVED. FILE NO 2999

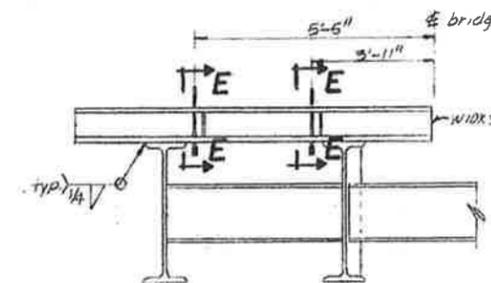




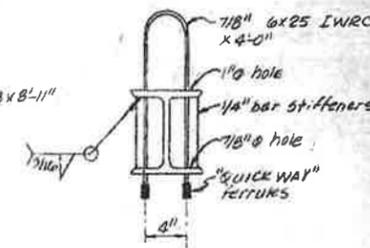
VIEW B-B
not to scale



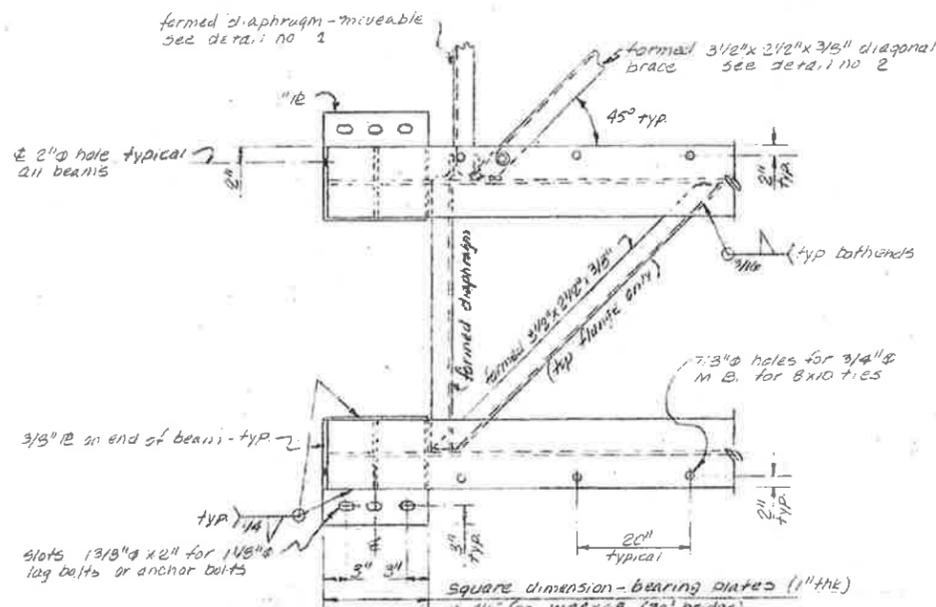
DETAIL NO. 1
1 1/2" = 1'-0"



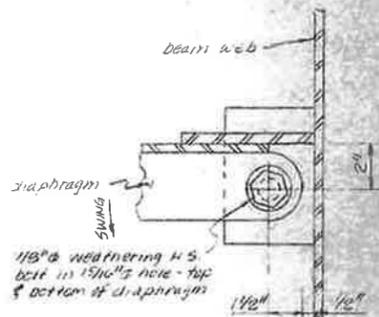
DETAIL NO. 3
not to scale



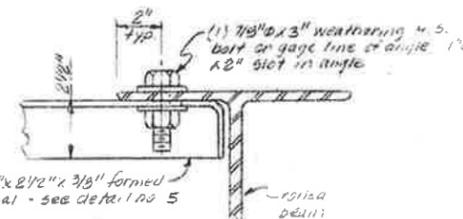
SECTION E-E
not to scale



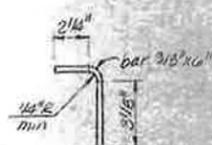
SECTION C-C
not to scale



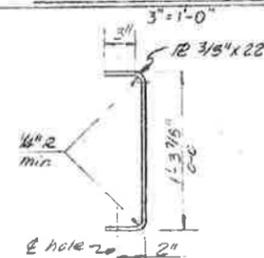
SECTION D-D
3" = 1'-0"



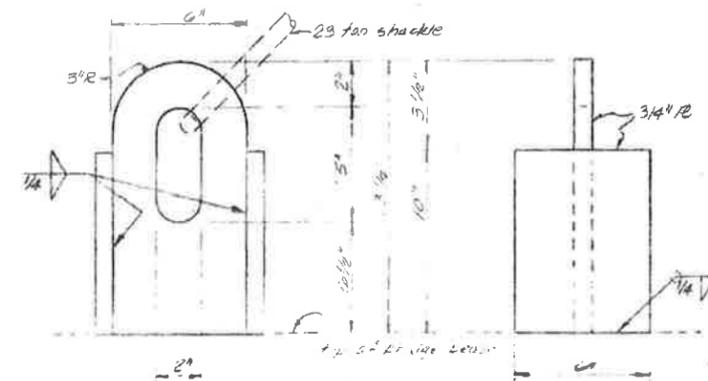
DETAIL NO. 2
3" = 1'-0"



DETAIL NO. 5
not to scale



DETAIL NO. 6
not to scale



DETAIL NO. 4
No Scale

U.S. Patent No. 4073025 Dwg. Revised 9/78

OREGON BRIDGE ENGINEERING COMPANY
CONSULTING ENGINEERS EPHRAIM, OREGON

1978 ALASKA "E-Z" BRIDGES

DETAILS

| | | | |
|---------------|----------|------------------|--------|
| DRAWN AL K | CHECKED | PROJECT NO 5-200 | DWG NO |
| DESIGNED AL K | APPROVED | REV NO 3000 | 2 of 2 |



Slow Dxp Timber Sale Temporary Bridge Placement

SPECIFICATIONS

U.S. Forest Service
Clackamas River Ranger District
Mt. Hood National Forest
Clackamas County, Oregon

Table of Contents

| | |
|--|----|
| 107 - Legal Relations and Responsibility to the Public..... | 3 |
| 107.02 Protection and Restoration of Property and Landscape..... | 3 |
| 170 - Develop Water Supply and Watering..... | 4 |
| 204 - Excavation and Embankment..... | 5 |
| 204.14 Disposal of Unsuitable or Excess Material..... | 17 |
| 571 – Prefabricated Bridges..... | 18 |

107 - Legal Relations and Responsibility to the Public

107.02_nat_us_02_17_2005

107.02 Protection and Restoration of Property and Landscape.

Add the following:

Do not work within the wetted perimeter of streams before July 15 or after August 31.

All equipment used for in-stream work shall be cleaned and leaks repaired prior to entering the project area. Remove external oil and grease, along with dirt and mud prior to construction. Thereafter, inspect equipment daily for leaks or accumulations of grease, and fix any identified problems before entering streams or areas that drain directly to streams or wetlands.

Equipment used for in-stream or riparian work shall be fueled and serviced in an established staging area. When not in use, vehicles shall be stored in the staging area.

Minimize the number and length of stream crossings and access routes through riparian areas, thereby limiting the disturbance to the riparian habitat. Crossings and access routes shall be as close to right angles as possible. Stream crossings shall not increase risks of channel re-routing at low and high water conditions.

The work in this contract is covered by a U.S. Army Corps of Engineers Regional General Permit for U.S. Forest Service and Bureau of Land Management Aquatic Habitat Restoration within the State of Oregon. As part of the General Conditions work must comply with the Oregon Department of Environmental Quality 401 Water Quality Certification.

When drafting water from live streams:

- a. No water shall be withdrawn from any occupied Listed Fish Habitat (LFH) stream (Middle Fork Hood River and Bear Creek) except in an emergency (e.g., wild fire) situation.
- b. The Purchaser shall limit water withdrawals for road maintenance or other purposes in LFH and within 1,500 feet of LFH to 10 percent or less of stream flow at the point of withdrawal (visually estimated).
- c. The Purchaser shall limit water withdrawals for road maintenance or other purposes in non-LFH streams greater than 1,500 feet from LFH limit withdrawal by 50 percent or less of the stream flow (visually estimated).
- d. Regardless of water withdrawal location, use of screen material with either of the following maximum openings is required: 1.75 mm opening for woven wire or 3/32 inch opening for perforated plate.

170 - Develop Water Supply and Watering

170.00_0618_us_03_26_2007

Description

170.01 This work consists of developing an acceptable water supply, furnishing, hauling, and applying water.

Materials

170.02 Conform to the following subsection.

| | |
|-------|---------|
| Water | 725.01. |
|-------|---------|

Construction Requirements

170.03 Development of Supply & Access. Develop water supplies and access to the water supplies as required. Use designated water sources or other approved water sources. Before using non-designated water sources, obtain all necessary permissions, water rights, and permits.

170.04 Equipment.

(a) Water tanks. Provide mobile watering equipment with watertight tanks of known capacity. Provide for positive control of water application from the driver's position.

(b) Juvenile fish protection. All draft hoses being used to withdraw water from any live flowing stream or pond will utilize one of the following methods of screening.

(1) Perforated plate: Screen opening shall not exceed 3/32 or 0.0938-inches.

(2) Profile bar screen: The narrowest dimension in the screen openings shall not exceed 0.0689-inches in the narrowest direction.

(3) Woven wire screen: Screen openings shall not exceed 3/32 or 0.0938-inches in the narrow direction.

All methods shall be cleaned frequently with either wire brushing, flushing or other acceptable method.

170.05 Application. Apply water uniformly without ponding or washing.

170.06 Acceptance. Developing water supplies and watering will be evaluated under Subsections 106.02 and 106.04.

Measurement and Payment

170.07 See Subsection 109.05.

Do not measure develop water supply and watering for payment.

204 - Excavation and Embankment

204.00_nat_us_03_26_2009

Description

204.01 This work consists of excavating material and constructing embankments. This includes furnishing, hauling, stockpiling, placing, disposing, sloping, shaping, compacting, and finishing earthen and rocky material.

204.02 Definitions.

(a) **Excavation.** Excavation consists of the following:

(1) **Roadway excavation.** All material excavated from within the right-of-way or easement areas, except subexcavation covered in (2) below and structure excavation covered in Sections 208 and 209. Roadway excavation includes all material encountered regardless of its nature or characteristics.

(2) **Subexcavation.** Material excavated from below subgrade elevation in cut sections or from below the original groundline in embankment sections. Subexcavation does not include the work required by Subsections 204.05, 204.06(b), and 204.06(c).

(3) **Borrow excavation.** Material used for embankment construction that is obtained from outside the roadway prism. Borrow excavation includes unclassified borrow, select borrow, and select topping.

(b) **Embankment construction.** Embankment construction consists of placing and compacting roadway or borrow excavation. This work includes:

- (1) Preparing foundation for embankment;
- (2) Constructing roadway embankments;
- (3) Benching for side-hill embankments;
- (4) Constructing dikes, ramps, mounds, and berms; and
- (5) Backfilling subexcavated areas, holes, pits, and other depressions.

(c) **Conserved topsoil.** Excavated material conserved from the roadway excavation and embankment foundation areas that is suitable for growth of grass, cover crops, or native vegetation.

(d) **Waste.** Excess and unsuitable roadway excavation and subexcavation that cannot be used.

Material

204.03 Conform to the following Subsections:

| | |
|---------------------|--------|
| Backfill material | 704.03 |
| Select borrow | 704.07 |
| Select topping | 704.08 |
| Topping | 704.05 |
| Unclassified borrow | 704.06 |
| Water | 725.01 |

Construction Requirements

204.04 Preparation for Roadway Excavation and Embankment Construction. Clear the area of vegetation and obstructions according to Sections 201 and 203.

204.05 Reserved.

204.06 Roadway Excavation. Excavate as follows:

(a) General. Do not disturb material and vegetation outside the construction limits. Incorporate only suitable material into embankments. Replace any shortage of suitable material caused by premature disposal of roadway excavation. Dispose of unsuitable or excess excavation material according to Subsection 204.14.

At the end of each day's operations, shape to drain and compact the work area to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

Retrieve material deposited outside of the clearing limits as directed by the CO. Place unsuitable material in designated areas.

(b) Rock cuts. Blast rock according to Section 205. Excavate rock cuts to 6 inches below subgrade within the roadbed limits. Backfill to subgrade with topping or with other suitable material. Compact the material according to Subsection 204.11

(c) Earth cuts. Scarify earth cuts to 6 inches below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(d) Pioneer Roads. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

Slow DXP Timber Sale

204.07 Subexcavation. Excavate material to the limits designated by the CO. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

204.08 Borrow Excavation. Use all suitable roadway excavation in embankment construction. Do not use borrow excavation when it results in excess roadway excavation. Deduct excess borrow excavation from the appropriate borrow excavation quantity.

Obtain borrow source acceptance according to Subsection 105.02. Develop and restore borrow sources according to Subsection 105.03. Do not excavate beyond the established limits. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

204.09 Preparing Foundation for Embankment Construction. Prepare foundation for embankment construction as follows:

(a) Embankment less than 4 feet high over natural ground. When designated, remove topsoil and break up the ground surface to a minimum depth of 6 inches by plowing or scarifying. Compact the ground surface according to Subsection 204.11.

(b) Embankments over an existing asphalt, concrete, or gravel road surface. Scarify gravel roads to a minimum depth of 6 inches. Scarify or pulverize asphalt and concrete roads to 6 inches below the pavement. Reduce all particles to a maximum size of 6 inches and produce a uniform material. Compact the surface according to Subsection 204.11.

(c) Embankment across ground not capable of supporting equipment. Dump successive loads of embankment material in a uniformly distributed layer to construct the lower portion of the embankment. Limit the layer thickness to the minimum depth necessary to support the equipment.

(d) Embankment on an existing slope steeper than 1V:3H. Cut horizontal benches in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Bench the slope as the embankment is placed and compacted in layers. Begin each bench at the intersection of the original ground and the vertical cut of the previous bench.

204.10 Embankment Construction. Incorporate only suitable roadway excavation material into the embankment. When the supply of suitable roadway excavation is exhausted, furnish unclassified borrow to complete the embankment. Obtain written approval before beginning construction of embankments over 6 feet high at subgrade centerline. Construct embankments as follows:

(a) General. At the end of each day's operations, shape to drain and compact the embankment surface to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

Slow DXP Timber Sale

Compact embankment side slopes flatter than 1V:1.75H with a tamping type roller or by walking with a dozer. For slopes 1V:1.75H or steeper, compact the slopes as construction of the embankment progresses.

Where placing embankment on one side of abutments, wing walls, piers, or culvert headwalls, compact the material using methods that prevent excessive pressure against the structure.

Where placing embankment material on both sides of a concrete wall or box structure, conduct operations so compacted embankment material is at the same elevation on both sides of the structure.

Where structural pilings are placed in embankment locations, limit the maximum particle size to 4 inches.

(b) Embankment within the roadway prism. Place embankment material in horizontal layers not exceeding 12 inches in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch layers by reducing them in size or placing them individually as required by (c) below. Compact each layer according to Subsection 204.11 before placing the next layer.

Material composed predominately of boulders or rock fragments too large for 12-inch layers may be placed in layers up to 24 inches thick. Incorporate oversize boulders or rock fragments into the 24-inch layer by reducing them in size or placing them individually according to (c) below. Place sufficient earth and smaller rocks to fill the voids. Compact each layer according to Subsection 204.11 before placing the next layer.

(c) Individual rock fragments and boulders. Place individual rock fragments and boulders greater than 24 inches in diameter as follows:

- (1) Reduce rock to less than 48 inches in the largest dimension.
- (2) Distribute rock within the embankment to prevent nesting.
- (3) Place layers of embankment material around each rock to a depth not greater than that permitted by (b) above. Fill all the voids between rocks.
- (4) Compact each layer according to Subsection 204.11 before placing the next layer.

(d) Embankment outside of roadway prism. Where placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches in compacted thickness. Compact each layer according to Subsection 204.11.

204.11 Compaction. Compact the embankment using one of the following methods as specified:

(a) Compaction A. Use AASHTO T 27 to determine the amount of material retained on a Number 4 sieve. If there is more than 80 percent retained on the No. 4 sieve use procedure (1). If there is 50 to 80 percent retained on the No. 4 sieve use procedure (2). If there is less than 50 percent retained on the No. 4 sieve use procedure (3).

- (1) Adjust the moisture content to a level suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Use compression-type rollers at speeds

Slow DXP Timber Sale

less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width with one of the following and until there is no visible evidence of further consolidation.

- (a) Four roller passes of a vibratory roller having a minimum dynamic force of 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.
- (b) Eight roller passes of a 20-ton compression-type roller.
- (c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches as follows:

- For each additional 6 inches or fraction thereof, increase the number of roller passes in (a) above by four passes.
- For each additional 6 inches or fraction thereof, increase the number of roller passes in (b) and (c) above, by eight passes.

(2) Use AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 sieve. Multiply this number by the percentage of material passing a No. 4 sieve, and add 2 percent to determine the optimum moisture content of the material. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width according to (1) above.

(3) Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 180, method D. For other material classifications, determine the optimum moisture content and maximum density according to AASHTO T 99, method C.

Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type or vibratory rollers. Compact each layer of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

(b) Compaction B. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Adjust the moisture content of the material to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Operate compaction equipment over the full width of each layer until there is no visible evidence of further

Slow DXP Timber Sale

consolidation or, if when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

(c) **Compaction C.** Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

204.12 Ditches. Slope, grade, and shape ditches. Remove all projecting roots, stumps, rock, or similar matter. Maintain all ditches in an open condition and free from leaves, sticks, and other debris.

Form furrow ditches by plowing or using other acceptable methods to produce a continuous furrow. Place all excavated material on the downhill side so the bottom of the ditch is approximately 18 inches below the crest of the loose material. Clean the ditch using a hand shovel, ditcher, or other suitable method. Shape to provide drainage without overflow.

204.13 Sloping, Shaping, and Finishing. Complete slopes, ditches, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish as follows:

(a) **Sloping.** Leave all earth slopes with uniform roughened surfaces, except as described in (b) below, with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of all slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale all rock slopes. Slope rounding is not required on tolerance class D though M roads.

If a slide or slipout occurs on a cut or embankment slope, remove or replace the material, and repair or restore all damage to the work. Bench or key the slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

(b) **Stepped slopes.** Where required by the contract, construct steps on slopes of 1½V:1H to 1V:2H. Construct the steps approximately 18 inches high. Blend the steps into natural ground at the end of the cut. If the slope contains nonrippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks that may fall, scaling stepped slopes is not required.

(c) **Shaping.** Shape the subgrade to a smooth surface and to the cross-section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground.

(d) **Finishing.** Finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-2. Ensure that the subgrade is visibly

Slow D&P Timber Sale

moist during shaping and dressing. Scarify to 6 inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed.

For unsurfaced roads, use one of the following methods to finish the roadbed:

- (1) **Method A.** Remove all material larger than 6 inches from the top 6 inches of the roadbed and replace with suitable material.
- (2) **Method B.** Use a vibratory grid roller or approved equal with a minimum weight of 10 tons. Roll at least 5 full-width passes or until there is no visible evidence of further consolidation.
- (3) **Method C.** For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or legally off of the project.

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

204.15 Acceptance. See Table 204-1 for sampling and testing requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Clearing and removal of obstructions will be evaluated under Sections 201 and 203.

Measurement

204.16 Measure the Section 204 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

(a) Roadway excavation. Measure roadway excavation in its original position as follows:

- (1) Include the following volumes in roadway excavation:
 - (a) Roadway prism excavation;
 - (b) Rock material excavated and removed from below subgrade in cut sections;
 - (c) Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
 - (d) Ditches, except furrow ditches measured under a separate bid item;
 - (e) Topsoil;
 - (f) Borrow material used in the work when a pay item for borrow is not shown in the

Slow DXP Timber Sale

bid schedule;

- (g) Loose scattered rocks removed and placed as required within the roadway;
- (h) Conserved material taken from stockpiles and used in Section 204 work; and
- (i) Slide and slipout material not attributable to the Contractor's method of operation.

(2) Do not include the following in roadway excavation:

- (a) Overburden and other spoil material from borrow sources;
- (b) Overbreakage from the backslope in rock excavation;
- (c) Water or other liquid material;
- (d) Material used for purposes other than required;
- (e) Roadbed material scarified in place and not removed;
- (f) Material excavated when stepping cut slopes;
- (g) Material excavated when rounding cut slopes;
- (h) Preparing foundations for embankment construction;
- (i) Material excavated when benching for embankments;
- (j) Slide or slipout material attributable to the Contractor's method of operation;
- (k) Conserved material taken from stockpiles constructed at the option of the Contractor; and
- (l) Material excavated outside the established slope limits.

(3) When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:

- (a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
- (b) Slide and slipout material not attributable to the Contractor's method of operations; and
- (c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, select borrow, and select topping. When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden.

Do not measure borrow excavation used in place of excess roadway excavation.

(c) Embankment construction. Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

(1) Include the following volumes in embankment construction:

- (a) Roadway embankments;
- (b) Material used to backfill subexcavated areas, holes, pits, and other depressions;
- (c) Material used to restore obliterated roadbeds to original contours; and
- (d) Material used for dikes, ramps, mounds, and berms.

(2) Do not include the following in embankment construction:

Slow Dxp Timber Sale

- (a) Preparing foundations for embankment construction;
 - (b) Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and
 - (c) Material used to round fill slopes.
- (d) Rounding cut slopes.** Measure rounding cut slopes horizontally along the centerline of the roadway if a pay item for slope rounding is included in the bid schedule. If a pay item for slope rounding is not included in the bid schedule slope rounding will be considered subsidiary to excavation.
- (e) Waste.** Measure waste by the cubic yard in its final position. Take initial cross-sections of the ground surface after stripping over burden. Upon completion of the waste placement, retake cross-sections before replacing overburden.
- (f) Slope scaling.** Measure slope scaling by the cubic yard in the hauling vehicle.

Payment

204.17 The accepted quantities will be paid at the contract price per unit of measurement for the Section 204 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Slow DxD Timber Sale

Table 204-1
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|---|--|------------------|----------|--|--|---|---------------------|---------------------------|
| Topping (704.05) & unclassified borrow (704.06) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type | Processed material before incorporating in work | Yes, when requested | Before using in work |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per 6000 yd ² | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 6000 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |
| Select borrow (704.07 & Select topping (704.08) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type but not less than 1 for each day of production | Processed material before incorporating | Yes, when requested | Before using in work |
| | | Gradation | — | AASHTO T 27 | “ | “ | “ | “ |
| | | Liquid limit | — | AASHTO T 89 | “ | “ | “ | “ |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per 6000 yd ² | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 6000 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |

(1) Minimum of 5 points per proctor

Table 204-1 (continued)
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|---|--|------------------|----------|--|--|--------------------|---------------------|---------------------------|
| Earth embankment (204.11, Compaction A) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type | Source of Material | Yes, when requested | Before using in work |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per 13,000 yd ³ | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 3500 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |
| Top of subgrade (204.11 Compaction A) | Measured and tested for conformance (106.04) | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 2500 yd ² | In-place | — | Before placing next layer |

(1) Minimum of 5 points per proctor.

Table 204-2
Construction Tolerances

| | Tolerance Class ^(a) | | | | | | | | | | | | |
|---|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| Roadbed width (ft) | +0.5 | +0.5 | +1.0 | +1.0 | +1.0 | +1.0 | +1.5 | +1.0 | +2.0 | +2.0 | +2.0 | +2.0 | +2.0 |
| Subgrade elevation (ft) | ±0.1 | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±2.0 | ±3.0 | ±2.0 | ±3.0 | (c) |
| Centerline alignment (ft) | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±1.5 | ±2.0 | ±3.0 | ±3.0 | ±5.0 | (c) |
| Slopes, excavation, and embankment <small>(% slope (b))</small> | ±3 | ±5 | ±5 | ±5 | ±5 | ±5 | ±10 | ±10 | ±10 | ±10 | ±20 | ±20 | ±20 |

(a) Maximum allowable deviation from construction stakes and drawings.

(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 feet of length.

204.14 Disposal of Unsuitable or Excess Material.

Delete the text of the first paragraph and substitute the following:

Dispose of unsuitable or excess material at designated sites or legally off of the project.

571 – Prefabricated Bridges

571.00_nat_us_03_15_2005

Description

571.01

This work consists of designing, fabricating, delivering, and installing a prefabricated modular bridge superstructures, or transporting and installing Government-furnished prefabricated, modular superstructures and components. The work also includes constructing caps, bearings, and abutments including excavation and backfill and anchoring bridge superstructures to abutments as required

Materials

571.02 Requirements.

Furnish materials that meet the requirements specified in the following sections:

| | |
|--------------------------------|-----|
| Bridge Railing | 556 |
| Structural Metal | 717 |
| Prestressed Concrete | 553 |
| Reinforcing Steel | 554 |
| Steel Structures | 555 |
| Structural Concrete | 552 |
| Timber Structures | 557 |
| Material for Timber Structures | 716 |

Concrete compressive strength, structural steel tensile strength, finish and designation, timber species, grade, and treatment, and other material specifications shall be as required or if not listed in the contract documents, take them from the manufacturer's drawings, and have them approved by the CO prior to fabrication.

Construction Requirements

571.03 Design Requirements.

For required loadings use the most recent AASHTO “Standard Specifications for Highway Bridges”.

When design of the structure is required, submit plans and calculations signed by a professional engineer registered in the state where the bridge will initially be located or in the state where the fabricator’s offices are located.

Use durable materials to allow removal, transportation, and re-installation without using specialized construction equipment. When required, design bridges to allow transportation by air or pack animals and complete construction by manual labor. Use design techniques and fabrication methods to minimize field installation difficulties. Fabricate primary components from steel.

Rig main superstructure components with permanent lifting devices to facilitate efficient installation and removal of these items. Place lifting devices so as not to interfere with traffic.

571.04 Design Drawings.

When furnishing a prefabricated bridge superstructure, submit design drawings, calculations, or shop drawings at least 21 days in advance of the start of fabrication to allow time for review and correction of any changes and approval by the CO. Include plan, elevation, and section views of the modular bridge superstructure, dimensions of all components, welding and connection details, and general and specific notes regarding design and construction.

When Government-furnished prefabricated bridge superstructure components are specified, material lists, installation information, and manufacturer’s instructions will be furnished by the Government.

571.05 General.

Perform excavation, backfill, and embankment work under Sections 204 and 209.

Dispose of all debris resulting from operations in accordance with Section 203.

571.06 Performance.

Notify the CO at least before delivering the bridge.

If the prefabricated superstructure is not installed immediately upon delivery to the project site, provide appropriate equipment and labor to unload and stack, support, and store all material at

Slow Dxp Timber Sale

the delivery point. Support and stack all components to prevent damage. Furnish and install blocking to support all components at least 12 inches above the ground.

Furnish all tools, devices, special equipment, and material needed for installation in well-marked watertight containers suitable for long-term, outdoor storage.

571.07 Abutments and Approaches.

Construct required caps, bearing, and abutments according to Division 500. Construct approaches including excavation and backfill according to sections 204 and 209.

571.08 Contractor-Furnished Prefabricated Bridge Superstructure.

Furnish the following items for approval prior to delivery of the bridge component:

- (a) Supplier or inspection agency certification of wood species and grade of all timber and a conformance certificate for all sawn and glued laminated members.
- (b) Certification by an approved inspection and testing agency of wood treatment, listing method of treatment, type of preservative, retention, and penetration. Supplier certification is permitted if each piece is stamped or branded with a legible American Wood Preservers Bureau quality mark.
- (c) Certification of structural steel, fasteners, and hardware.
- (d) Certification of galvanizing process used.
- (e) Steel fabricator certification that steel fabrication and quality control meet the requirements of the AISC Code of Standard Practice; and that all welding meets the requirements of ANSI/AASHTO/AWS D 1.5 Bridge Welding Code.
- (f) A complete list of all bridge components, hardware, and fasteners.
- (g) Complete instructions and drawings. Provide drawings that are black line, of reproducible quality, on ANSI sheet size D (24 inches by 36 inches). Furnish the same information in an approved electronic format.

Mark each major component of the bridge superstructure with the same permanent serial number in a location that is clearly visible, both when stacked in storage and erected at the site.

Assemble bridge superstructure prior to delivery to assure proper fit-up of all components. Notify the CO of the assembly 2 weeks before assembly.

571.09 Government-Furnished Prefabricated Bridge Superstructure.

For Government-furnished prefabricated bridge units, transport all material from the storage site(s) to the bridge site, and install the superstructure complete and in place, including connection of all girders, diaphragms, railings, panels, transoms, and other elements.

Upon taking possession of the Government-furnished units at the storage site, assume liability for damage resulting from handling, transporting, or erecting the units in place, until final acceptance of the project.

Slow Dxp Timber Sale

571.10 Non-pressure Epoxy Grout Anchors.

Furnish non-pressure epoxy grout to cement anchor dowels and bolts. At least 15 days prior to use submit for approval manufacture's test information on the non-pressure epoxy grout proposed for use.

Immediately prior to placing dowels or bolts, clean drill hole of dust and other material. Fill hole halfway with grout. Insert dowels by rotating it though one complete turn while tapping it down. Insert bolts according to manufacture's instructions. If necessary add more grout to fill the hole.

571.11 Acceptance.

Furnish a production certification for timber, including glued-laminated lumber, structural steel, and fabricated steel. Furnish a certification for all wood treatment, fasteners, hardware, galvanizing processes, and non-pressure epoxy grout.

Measurement

571.12

Measure the Section 571 items listed in the bid schedule according to Subsection 109.02.

Payment

571.13

The accepted quantities, measured as provided in Subsection 109.02 and above, will be paid at the contract price per unit of measurement for the Section 571 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.