

SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION OF SPECIFIED ROADS

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PART I - SCHEDULE OF ITEMS

SECTION B - SERVICES AND PRICES - Purchaser

NaCl Timber Sale
Road 2700-012

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B- 1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|--|------------|-----------|-------------|-------------------|
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs <u>k</u> , Logs <u>k</u> , Stumps <u>k</u> | Mile | 0.29 | \$ 5,290.75 | \$ 1,534.32 |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | Mile | 0.29 | \$ 8,308.99 | \$2,409.61 |
| 20420E | Drainage Excavation, Type <u>Cross Ditch</u> | Each | 6 | \$ 118.15 | \$708.90 |
| 32222 | Screened Aggregate, Grading P, Compaction Method B | Cubic Yard | 60 | \$ 30.51 | \$1,830.60 |
| | | | | | \$6,483.43 |

PART I - SCHEDULE OF ITEMS

SECTION B - SERVICES AND PRICES - Purchaser

NaCl Timber Sale
Road 2700-026

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B- 1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|--|------------|-----------|-------------|--------------------|
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs <u>k</u> , Logs <u>k</u> , Stumps <u>k</u> | Mile | 0.59 | \$ 5,290.75 | \$ 3,121.54 |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | Mile | 0.59 | \$ 8,308.99 | \$ 4,902.30 |
| 20420E | Drainage Excavation, Type <u>Cross Ditch</u> | Each | 6 | \$ 118.15 | \$ 708.90 |
| 32222 | Screened Aggregate Grading P, Compaction Method B | Cubic Yard | 40 | \$ 30.51 | 1,220.40 |
| | | | | | \$ 9,953.14 |

PART I - SCHEDULE OF ITEMS

SECTION B - SERVICES AND PRICES - Purchaser

NaCl Timber Sale
Road 2705-014

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B- 1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|--|----------|-----------|-------------|-------------|
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs <u>k</u> , Logs <u>k</u> , Stumps <u>k</u> | Mile | 0.13 | \$ 5,290.75 | \$ 687.80 |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | Mile | 0.13 | \$ 8,308.99 | \$ 1,080.17 |
| | | | | | \$ 1,767.97 |

PART I - SCHEDULE OF ITEMS

SECTION B – SERVICES AND PRICES – Purchaser

NaCl Timber Sale
Road 2705-016

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B- 1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|--|------------|-----------|--------------|---------------------|
| 15101 | Mobilization | Lump Sum | 1 | \$ 22,600.00 | \$ 22,600.00 |
| 17003 | Water | Lump Sum | 1 | \$ 9,399.02 | \$ 9,399.02 |
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs <u>k</u> , Logs <u>k</u> , Stumps <u>k</u> | Mile | 2.87 | \$ 2,289.01 | \$ 6,569.46 |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | Mile | 2.87 | \$ 6,238.67 | \$17,904.98 |
| 20420A | Drainage Excavation, Type <u>Reconstruct Drain Dip</u> | Each | 4 | \$ 137.58 | \$550.32 |
| 20420B | Drainage Excavation, Type <u>Drain Dip</u> | Each | 2 | \$ 206.37 | \$412.74 |
| 20420C | Drainage Excavation, Type <u>Reconstruct Drain Sag</u> | Each | 1 | \$ 137.58 | \$137.58 |
| 20420D | Drainage Excavation, Type <u>Lead Off Ditch</u> | Each | 2 | \$ 59.07 | \$ 118.14 |
| 20420E | Drainage Excavation, Type <u>Cross Ditch</u> | Each | 17 | \$ 118.15 | \$2,008.55 |
| 32222 | Screened Aggregate, Grading P, Compaction Method B | Cubic Yard | 2,813 | \$ 30.51 | \$ 85,824.63 |
| 63501 | Temporary Traffic Control | Lump Sum | 1 | \$ 1,940.04 | \$ 1,940.04 |
| 65102 | Pit and Quarry Development | Lump Sum | 1 | \$ 1,650.92 | \$ 1,650.92 |
| | | | | | \$149,116.38 |

PART I - SCHEDULE OF ITEMS

SECTION B - SERVICES AND PRICES - Purchaser

NaCl Timber Sale
Road 2705-032

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B-1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|------------|-----------|------------|-------------|
| 20102 | Clearing and Grubbing | Lump Sum | 1 | \$ 372.92 | \$ 372.92 |
| 20304 | Removal of Existing Culvert and Associated Components | Lump Sum | 1 | \$ 289.23 | \$ 289.23 |
| 20416 | Waste, Unsuitable Excavation | Cubic Yard | 10 | \$ 20.79 | \$ 207.90 |
| 20801 | Structure Excavation, Compaction Method B | Cubic Yard | 40 | \$ 19.17 | \$ 766.80 |
| 32222 | Screened Aggregate, Grading P, Compaction Method B | Cubic Yard | 10 | \$ 30.51 | \$ 305.10 |
| 60201 | 35" X 24" Arched Pipe Culvert, Galvanized, 16 Ga | Foot | 35 | \$ 61.56 | \$ 2,154.60 |
| | | | | | \$ 4,096.55 |

PART I - SCHEDULE OF ITEMS

SECTION B - SERVICES AND PRICES - Purchaser

NaCl Timber Sale
Road 2705-037

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B- 1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|--|------------|-----------|-------------|--------------------|
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs <u>k</u> , Logs <u>k</u> , Stumps <u>k</u> | Mile | 1.19 | \$ 5,290.75 | \$ 6,295.99 |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | Mile | 1.19 | \$ 8,308.99 | \$9,887.70 |
| 20420B | Drainage Excavation, Type <u>Drain Dip</u> | Each | 5 | \$ 206.37 | \$1,031.85 |
| 20420D | Drainage Excavation, Type <u>Lead Off Ditch</u> | Each | 1 | \$ 59.07 | \$ 59.07 |
| 20420E | Drainage Excavation, Type <u>Cross Ditch</u> | Each | 9 | \$ 118.15 | \$ 1,063.35 |
| 20420F | Drainage Excavation, Type <u>Drivable Ford</u> | Each | 3 | \$ 699.26 | \$ 2,097.78 |
| 25101 | Placed Riprap, Class 1 | Cubic Yard | 18 | \$ 33.74 | \$ 607.32 |
| 32222 | Screened Aggregate, Grading P, Compaction Method B | Cubic Yard | 1,333 | \$ 30.51 | \$ 40,669.83 |
| 60201 | 35" X 24" Arched Pipe Culvert, Galvanized, 16 Ga | Foot | 60 | \$ 61.56 | \$ 3,693.60 |
| | | | | | \$65,406.49 |

PART I - SCHEDULE OF ITEMS

SECTION B - SERVICES AND PRICES - Purchaser

NaCl Timber Sale
Road 2710-025

Lookout Mountain Ranger District

Ochoco National Forest
Crook County

B- 1 - SCHEDULE OF ITEMS

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|--|------------|-----------|-------------|--------------|
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs <u>k</u> , Logs <u>k</u> , Stumps <u>k</u> | Mile | 0.66 | \$ 2,289.01 | \$ 1,510.75 |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | Mile | 0.66 | \$ 6,238.67 | \$ 4,117.52 |
| 20420D | Drainage Excavation, Type <u>Lead Off Ditch</u> | Each | 2 | \$ 59.07 | \$ 118.14 |
| 20420E | Drainage Excavation, Type <u>Cross Ditch</u> | Each | 14 | \$ 118.15 | \$ 1,654.10 |
| 32222 | Screened Aggregate, Grading P, Compaction Method B | Cubic Yard | 315 | \$ 30.51 | \$ 9,610.65 |
| | | | | | \$ 17,011.16 |

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

101.00_nat_us_07_25_2005

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 | <u>National Institute of Standards and Technology</u> |
| 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.

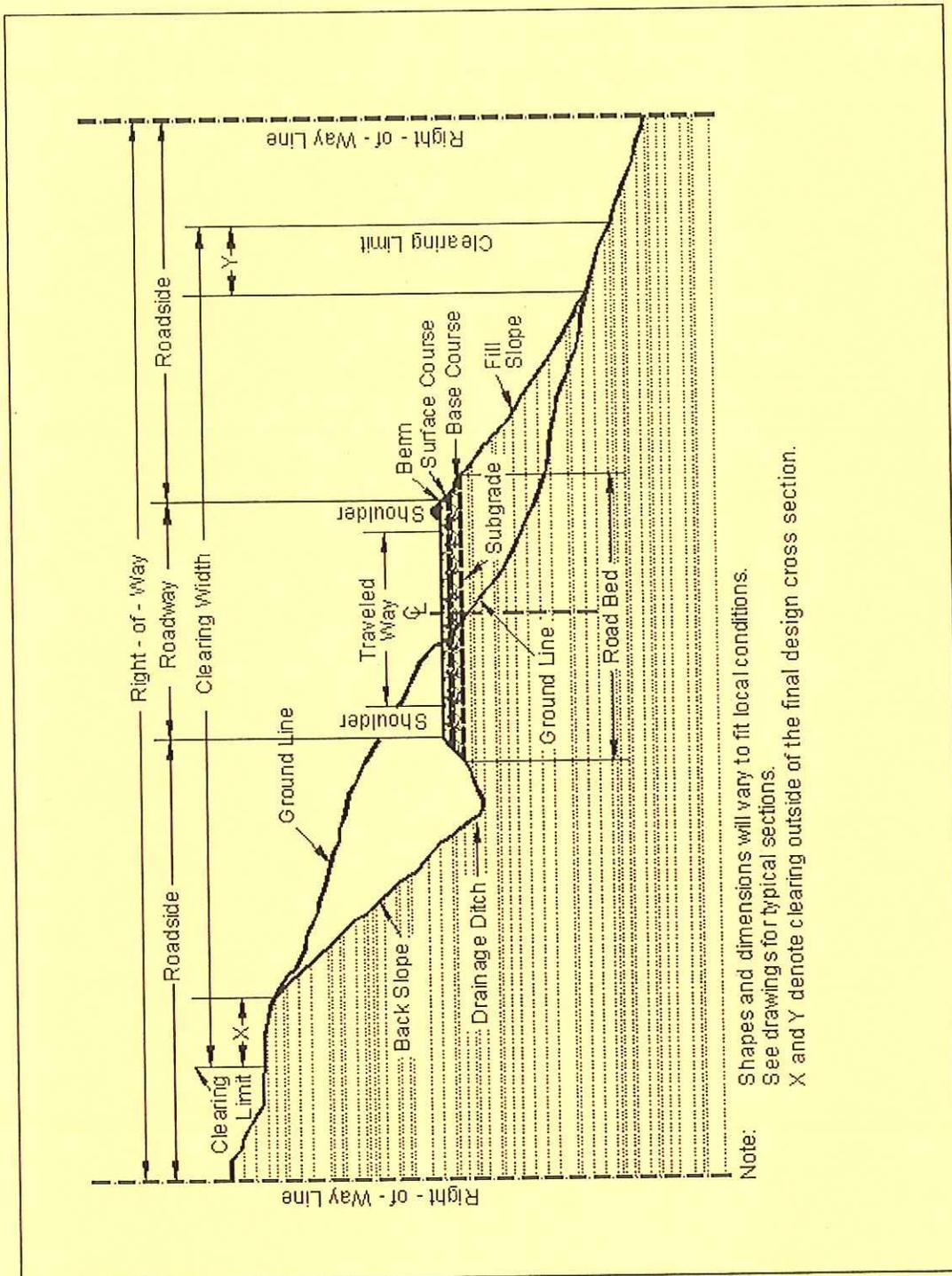
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

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.



Note: Shapes and dimensions will vary to fit local conditions.
 See drawings for typical sections.
 X and Y denote clearing outside of the final design cross section.

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_02_22_2005

104.03 Drawings and Specifications

Delete subsection 104.03

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.

104.07_nat_us_02_17_2005

Add Subsection.

104.07 Other Contracts.

Range Permittee: Highland material source will be used by a Forest Service Range Permittee for consolidating and loading sheep. The Permittee will use the entire material source area for 4 days each August. During the 4 day period, the pit operations shall be suspended. A reasonable attempt shall be made by the pit operator to move all mobile equipment to a location within the pit, that will not cause significant disruptions to the permittees operation. The ER will provide reasonable advanced scheduling to the purchaser prior to the Permittees arrival.

Other Timber Sales:

It is expected that other timber sales will be in operation concurrently with the NaCl Timber Sale. Material and water haul routes could overlap at times.

105 - Control of Material

105.02_nat_us_01_18_2007

105.02 Material Sources.

105.02(a) Government-provided sources.

Add the following:

Comply with the requirements of 30 CFR 56, subparts B and H. Use all suitable material for aggregate regardless of size unless otherwise designated. When required, re-establish vegetation in disturbed areas according to section 625.

105.02_nat_us_02_17_2005

105.02(a) Government Provided Sources.

There is no charge for material taken from (Highland Material Source).

105.02_nat_us_02_17_2005

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 (borrow, aggregate, riprap, pipe bedding) and in the production of aggregates under Sections (301/401/411/etc.) from (Highland Material Source).

(2) Government-provided optional sources.

Material for use as (borrow, aggregate, riprap, pipe bedding) and in the production of aggregates under Sections (301/401/411/etc.) may be obtained from (Highland Material Source).

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:

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.

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.

- 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.

170 - Develop Water Supply and Watering

170.00_nat_us_03_30_2005

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

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

170.07 Measure the Section 170 items listed in the bid schedule according to Subsection 109.02.

Payment

170.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 170 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

201 - Clearing and Grubbing

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_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.

203.05_nat_us_02_24_2005

203.05 Disposing of Material.

Add the following:

(e): Scattering. Scatter pieces of wood less than 3 inches in diameter and 3 feet in length within the clearing limits. Do not place construction slash in lakes, meadows, streams, or streambeds. Immediately remove construction slash that interferes with drainage structures.

203.08_nat_us_02_24_2005

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 through 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 $1\frac{1}{3}V:1H$ 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 (% slope ^(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.

209 - Structure Excavation and Backfill

209.10_nat_us_10_23_2007

209.10 Backfill.

(a) General.

Add the following:

Replace any pipe that is distorted by more than 5 percent of nominal dimensions, or that is ruptured or broken.

Do not place or backfill pipe that meets any of the following conditions until the excavation and foundation have been approved in writing by the CO:

- Embankment height greater than 6 feet at subgrade centerline.
- Installation in a protected streamcourse.
- Round pipe with a diameter of 48 inches or greater.
- Pipe arches with a span of 50 inches or greater.
- Any box culvert of structure other than pipe culverts.

(b) Pipe culverts.

(1) Pipe culverts with compacted backfill.

Add the following:

Excavate an area on each side of the pipe as needed to effectively achieve compaction requirements. Backfill without damaging or displacing the pipe. Complete backfilling of the trench with suitable material.

209.11_nat_us_02_24_2005

209.11 Compacting.

Delete the subsection and add the following:

Compact backfill using designated compaction method A, B, or C:

Method A. Ensure that backfill density exceeds the density of the surrounding embankment.

Method B. Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact each layer using appropriate compaction equipment until visual displacement ceases. For compaction under sections 252, 254, 255, 257, 258 and 262 compact with a vibratory steel wheeled roller with a mass of at least 8 tons.

Method C. Determine optimum moisture content and maximum density according to AASHTO T 99 method C. Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact material placed in all layers 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.

Table 209-1 Sampling and Testing Requirements

Add the following:

(2) Compaction methods (A) and (B) do not require AASHTO T-99 or T-310 test methods for foundation fill.

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.

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 | |
| | | Moisture-density Method F | — | AASHTO T 180 ⁽¹⁾ | " | " | " | " | |
| | | | — | | " | " | " | " | " |
| | | | — | | " | " | " | " | " |
| | | In-place density & moisture content | — | AASHTO T 310 or other approved procedures | 3 per day | In-place | — | Before placing next layer | |

**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 |

602 - Culverts and Drains

602.03_nat_us_09_06_2005

602.03 General.

Add the following:

Ensure that the final installed alignment of all pipe allows no reverse grades, and does not permit horizontal and vertical alignments to vary from a straight line drawn from center of inlet to center of outlet by more than 2 percent of pipe center length or 1.0 feet, whichever is less.

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.

651 - Development of Pits & Quarries

651.00_nat_us_03_02_2005

Description

651.01 This work consists of clearing, grubbing, stripping topsoil, removing overburden, constructing access roads, conducting restoration activities, and performing other incidental work required for pit or quarry development.

Construction Requirements

651.02 General. Submit a plan of operations according to Section 105. Perform all work in accordance with Sections 105, 201, 203, 204, 625, and 635, landscape preservation requirements, and the approved pit and quarry development plan of operations. Perform the work in accordance with MSHA 30 CFR, part 56.

651.03 Acceptance. Developing pits and quarries will be evaluated under Subsections 106.02 and 106.04.

Measurement

651.04 Measure the Section 651 items listed in the bid schedule according to Subsection 109.02.

Payment

651.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 651 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

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.

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 | Grading Designation | | | | |
|------------|---------------------|----------------|---------------|---------------|---------------|
| | A (Subbase) | B (Subbase) | C (Base) | D (Base) | E (Base) |
| 2½ inch | 100 | | | | |
| 2 inch | 97 – 100 | 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) | | | | |
| 3/8 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) |

() 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
Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)**

| Sieve Size | Grading 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 (\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 | |

703.10_nat_us_04_11_2011

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.

704 - Soil

704.02_nat_us_03_02_2005

704.02 Bedding Material.

Delete Subsection 704.02 and substitute the following:

Furnish a well graded, free draining material free of excess moisture, muck, frozen lumps, roots, sod, or other deleterious material conforming to the following:

- | | |
|--|--|
| (a) Maximum particle size | 3 inch or half the corrugation depth, whichever is smaller |
| (b) Material passing No. 200 sieve, AASHTO T 27 and T 11 | 10% max. |

718 - Traffic Signing and Marking Material

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.



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE - REGION SIX
OCHOCO FOREST
LOOKOUT MOUNTAIN RANGER DISTRICT

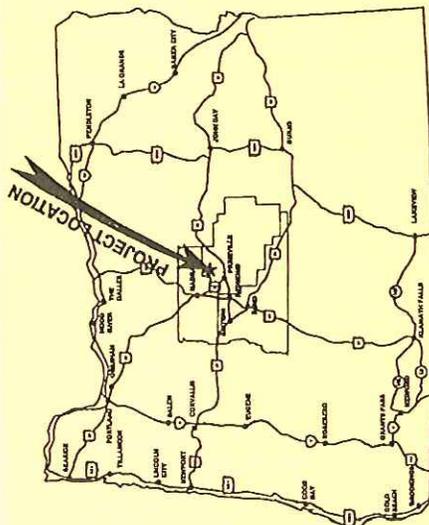


DRAWINGS FOR PROPOSED
NACI TIMBER SALE

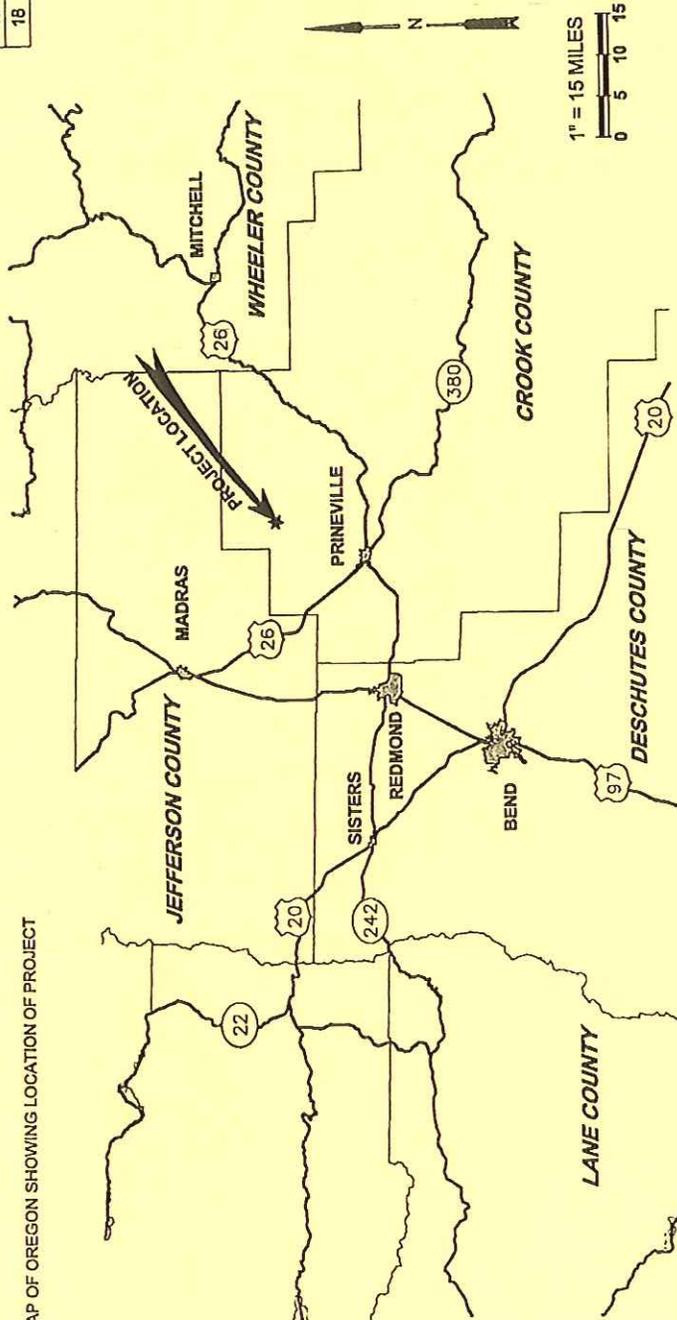
| ROAD NO. | LENGTH |
|----------|------------|
| 2700-012 | 0.29 MILES |
| 2700-026 | 0.59 MILES |
| 2705-014 | 0.13 MILES |
| 2705-016 | 2.87 MILES |
| 2705-032 | 0.01 MILES |
| 2705-037 | 1.19 MILES |
| 2710-025 | 0.66 MILES |

| TYPE OF WORK | SHEET NO. |
|----------------|-----------|
| RECONSTRUCTION | ALL |

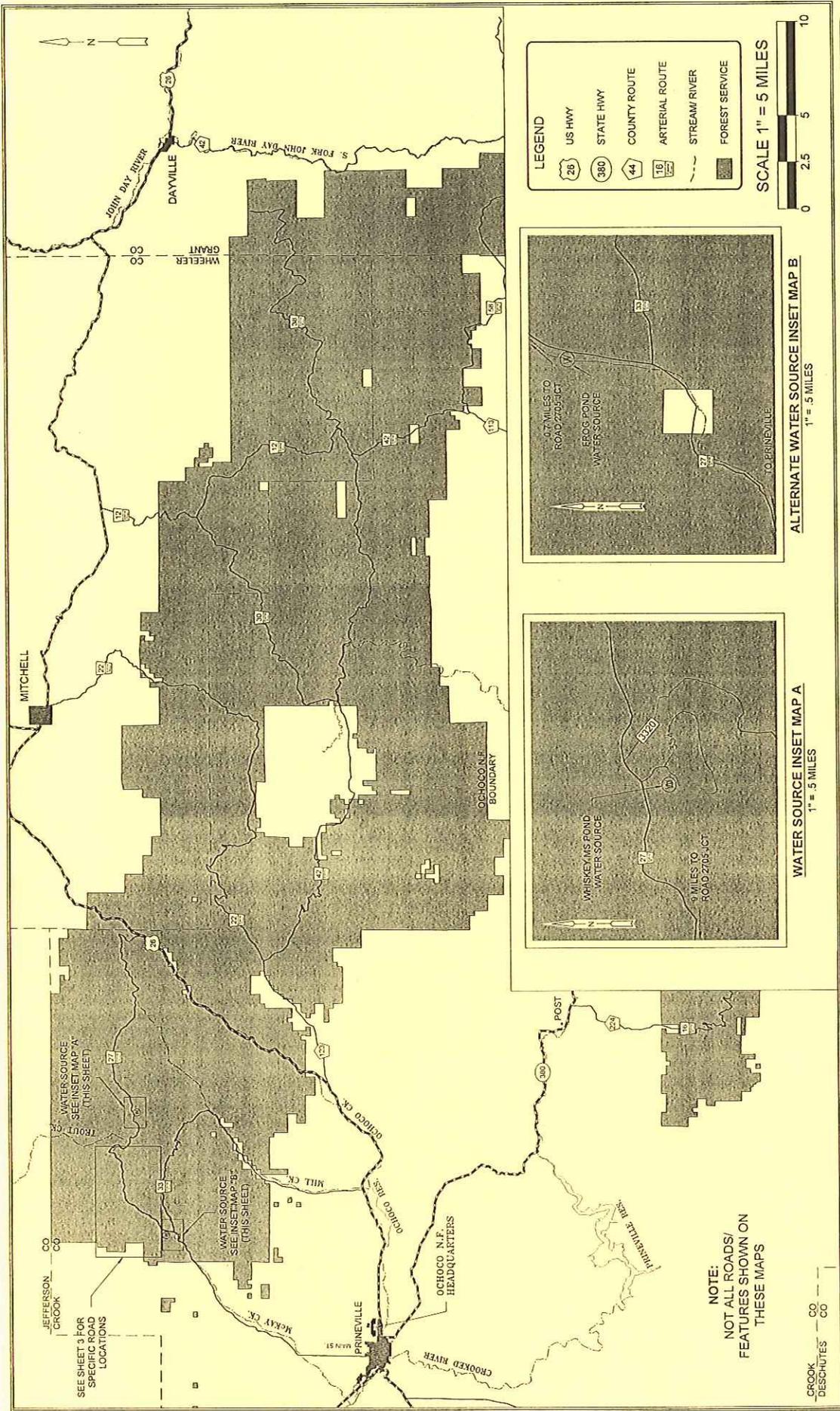
| NO. | TITLE SHEET | DESCRIPTION |
|-----|---------------------------------------|-------------|
| 1 | TITLE SHEET | |
| 2 | AREA MAP | |
| 3 | VICINITY MAP | |
| 4 | ESTIMATE OF QUANTITIES | |
| 5 | ROAD 2700-012/026 WORK SUMMARY | |
| 6 | ROAD 2705-014 WORK SUMMARY | |
| 7 | ROAD 2705-016 WORK SUMMARY | |
| 8 | ROAD 2705-037 WORK SUMMARY | |
| 9 | ROAD 2710-025 WORK SUMMARY | |
| 10 | ROAD 2705-032 DETAILS | |
| 11 | ROADWAY TYPICAL SECTIONS | |
| 12 | CLEARING DIMENSIONS/ ROAD 016 DETAILS | |
| 13 | DRAIN DIP DETAILS | |
| 14 | DRAIN SAG DETAILS | |
| 15 | CROSS DITCH/ OUTLET DITCH DETAILS | |
| 16 | DRIVABLE FORD DETAILS | |
| 17 | ROAD 2705-037 CULVERT REPLACEMENTS | |
| 18 | HIGHLAND MATERIAL SOURCE | |



KEY MAP OF OREGON SHOWING LOCATION OF PROJECT



| | | | |
|---------------------------|--------------------|------|----------|
| DESIGNED BY: | <i>[Signature]</i> | DATE | 02/11/14 |
| REVIEWED BY: | <i>[Signature]</i> | DATE | 2/13/14 |
| PROJECT ENGINEER | | DATE | |
| REVIEWED BY: | <i>[Signature]</i> | DATE | 2/13/14 |
| PROJECT MANAGER | | DATE | |
| TECHNICALLY APPROVED BY: | <i>[Signature]</i> | DATE | 2/13/14 |
| FOREST ENGINEER | | DATE | |
| UNIT MANAGER/APPROVED BY: | <i>[Signature]</i> | DATE | 2-13-14 |
| DISTRICT RANGER | | DATE | |



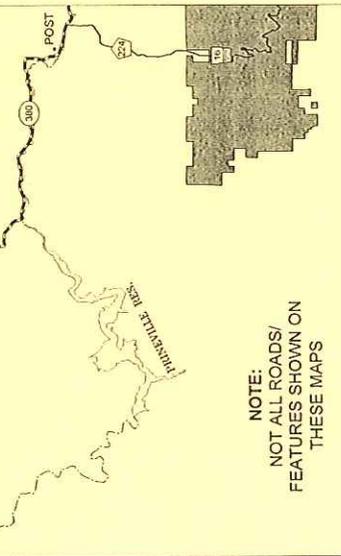
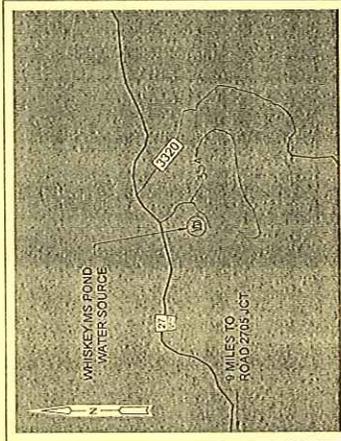
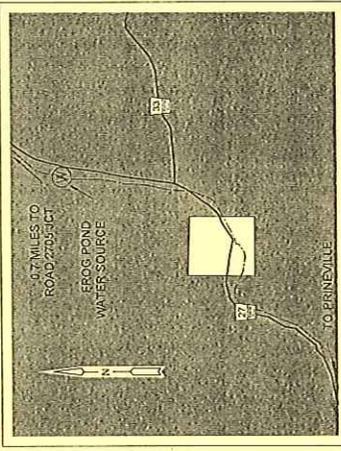
SEE SHEET 3 FOR
SPECIFIC ROAD
LOCATIONS

WATERSOURCE
SEE INSET MAP "A"
(THIS SHEET)

WATERSOURCE
SEE INSET MAP "B"
(THIS SHEET)

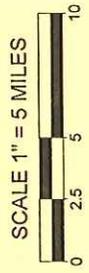
NOTE:
NOT ALL ROADS/
FEATURES SHOWN ON
THESE MAPS

CROOK
DESCHUTES CO CO



LEGEND

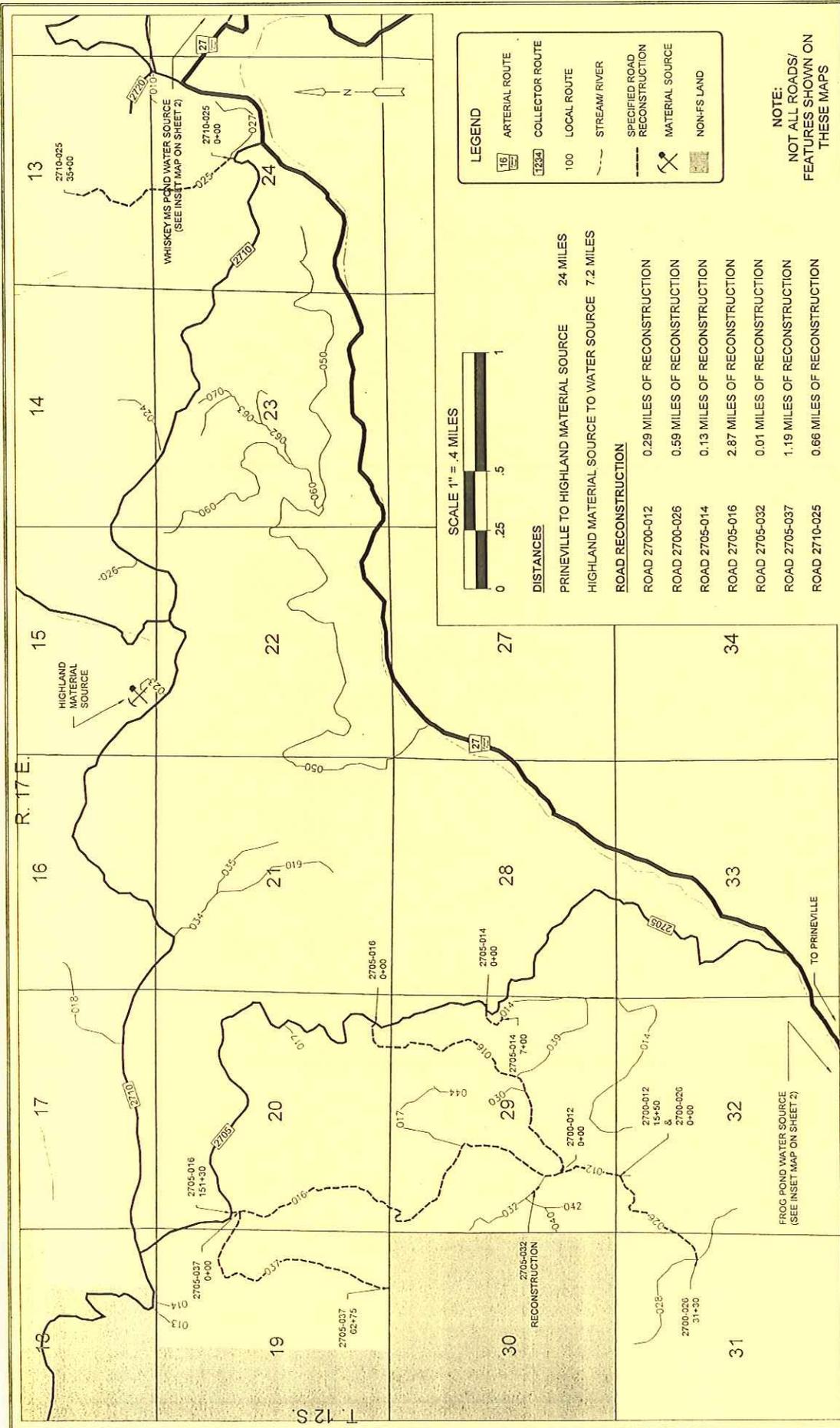
- (26) US HWY
- (380) STATE HWY
- (44) COUNTY ROUTE
- (16) ARTERIAL ROUTE
- STREAM/RIVER
- FOREST SERVICE



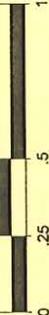
Sheet Title **AREA MAP**
Scale **1" = 5 MILES** Sheet **2** of **18**

Forest **OCHOCO**
Project Name **NaCl TIMBER SALE**

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



SCALE 1" = 4 MILES



DISTANCES

- PRINEVILLE TO HIGHLAND MATERIAL SOURCE 24 MILES
- HIGHLAND MATERIAL SOURCE TO WATER SOURCE 7.2 MILES
- ROAD RECONSTRUCTION**
- ROAD 2700-012 0.29 MILES OF RECONSTRUCTION
- ROAD 2700-026 0.59 MILES OF RECONSTRUCTION
- ROAD 2705-014 0.13 MILES OF RECONSTRUCTION
- ROAD 2705-016 2.87 MILES OF RECONSTRUCTION
- ROAD 2705-032 0.01 MILES OF RECONSTRUCTION
- ROAD 2705-037 1.19 MILES OF RECONSTRUCTION
- ROAD 2710-025 0.66 MILES OF RECONSTRUCTION

LEGEND

- ARTERIAL ROUTE
- COLLECTOR ROUTE
- LOCAL ROUTE
- STREAM/RIVER
- SPECIFIED ROAD RECONSTRUCTION
- MATERIAL SOURCE
- NON-FS LAND

NOTE:
NOT ALL ROADS/
FEATURES SHOWN ON
THESE MAPS

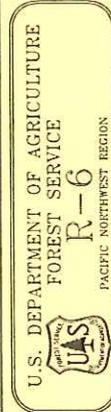
Sheet Title **VICINITY MAP**
Scale **1" = .4 MILES**
Sheet **3** of **18**

Forest **OCHOCO**
Project Name **NaCl TIMBER SALE**

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

ESTIMATE OF QUANTITIES

| ITEM NO. | DESCRIPTION | ROAD: | PAY UNIT | | | | | | | | | | TOTAL | REMARKS |
|----------|---|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|--|----|-------|--|
| | | | PAY UNIT | | | | | | | | | | | |
| | | | 2705 016 | 2705 037 | 2705 014 | 2700 012 | 2700 025 | 2710 025 | 2705 032 | | | | | |
| 15101 | Mobilization | LS | 1 | | | | | | | | | | 1 | Equipment washing for noxious weed control is indirect to pay item. |
| 17003 | Water | LS | 1 | | | | | | | | | | 1 | Whiskey M.S. Pond water source. Pumping equipment is required. See notes on sheet 12. |
| 20102 | Clearing and Grubbing | LS | | | | | | | | | | | 1 | Dispose of merchantable timber according to the Timber Sale Provisions. Pile construction slash at designated (staked) locations. |
| 20103 | Clearing and Grubbing, Disposal of Tops and Limbs k, Logs k, Stumps k | MI | 2.87 | 1.19 | 0.13 | 0.29 | 0.59 | 0.66 | | | | | 5.73 | See specifications for disposal methods. |
| 20304 | Removal of existing culvert and associated components | LS | | | | | | | | | | | 1 | Remove all non-native material from Government land. |
| 20402 | Roadway Excavation, Compaction Method B, Finishing Method A | MI | 2.87 | 1.19 | 0.13 | 0.29 | 0.59 | 0.66 | | | | | 5.73 | See roadway typical sections on sheet 11 (sheet 6 for road 2705-014). |
| 20416 | Waste, Unsuitable Excavation | CY | | | | | | | | | | | 10 | Remove material to Highland Material Source. |
| 20420A | Drainage Excavation, Type Reconstruct Drain Dip | EA | 4 | | | | | | | | | | 4 | See sheet 13 |
| 20420B | Drainage Excavation, Type Drain Dip | EA | 2 | 5 | | | | | | | | | 7 | See sheet 13 |
| 20420C | Drainage Excavation, Type Reconstruct Drain Sag | EA | 1 | | | | | | | | | | 1 | See sheet 14 |
| 20420D | Drainage Excavation, Type Lead Off Ditch | EA | 2 | 1 | | | | 2 | | | | | 5 | See sheet 15 |
| 20420E | Drainage Excavation, Type Cross Ditch | EA | 17 | 9 | | 6 | 6 | 14 | | | | | 52 | See sheet 15 |
| 20420F | Drainage Excavation, Type Drivable Ford | EA | | 3 | | | | | | | | | 3 | See sheet 16 |
| 20801 | Structure Excavation, Compaction Method B | CY | | | | | | | | | | 40 | 40 | Quantities shown are compacted in place volume. See sheet 10, Excavation according to Section 209, Compaction method B |
| 25101 | Placed Riprap, Class 1 | CY | | 18 | | | | | | | | | 18 | Obtain from Highland Material Source. Sorting required to produce the specified material. |
| 32222 | Screened Aggregate Grading P, Compaction Method B | CY | 2.813 | 1,333 | | 60 | 40 | 315 | | | | 10 | 4,571 | Quantities shown are compacted in place volume. It is the contractors responsibility to determine the loose quantities to be hauled and placed Use Highland material source to produce and obtain the material. Crushing and sorting will be required to produce the specified material. |
| 60201 | 35" x 24" Arched Pipe Culvert, Galvanized, 16 ga | FT | | 60 | | | | | | | | 35 | 95 | Estimated culvert lengths in work summaries. Specific lengths shall be staked by E.R. prior to commencement of work. |
| 63501 | Temporary Traffic Control | LS | 1 | | | | | | | | | | 1 | Includes signing of material haul routes and water haul routes. |
| 65102 | Pit and Quarry Development | LS | 1 | | | | | | | | | | 1 | According to pit development plan. |



OCHOCO
Project Name
NACL TIMBER SALE

Sheet Title
ESTIMATE OF QUANTITIES
Sheet
Score
N/A 4 of 18

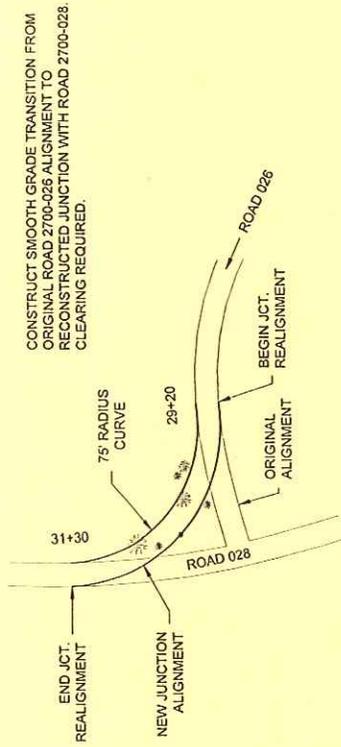
ROAD 2700-012/ 2700-026

ROAD 2700-012

| STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE |
|-------|---|-----------------|--------------|---|
| 0+00 | BEG. PROJECT BEG. Clearing and Grubbing BEG. Roadway Excavation | 20103 20402 | 0.29 0.29 | JCT 2700-016 See sheet 12 See sheet 11 |
| 2+05 | Screensed Aggregate | 32222 | 20 | Fill depression in roadway |
| 7+80 | Construct Cross Ditch | 20420E | 1 | |
| 11+35 | Construct Cross Ditch | 20420E | 1 | |
| 15+50 | END: Clearing and Grubbing END: Roadway Excavation | 20103 20402 | | E.O.P. JCT 2700-026 |
| | Construct Cross Ditch Screensed Aggregate | 20420E 32222 | 4 40 | Specific locations TBD (Staked by ER) 10' depth, specific locations to be determined/ staked by E.R. |

ROAD 2700-026

| STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE |
|-------|---|-----------------|--------------|---|
| 0+00 | BEG. PROJECT BEG. Clearing and Grubbing BEG. Roadway Excavation | 20103 20402 | 0.59 0.59 | JCT 2700-012 See sheet 12 See sheet 11 |
| 11+00 | Construct Cross Ditch | 20420E | 1 | |
| 29+20 | | | | Begin junction realignment. See detail this sheet. |
| 31+30 | END: Clearing and Grubbing END: Roadway Excavation | 20103 20402 | | End junction realignment End project at junction with road 2700-028 |
| | Construct Cross Ditch Screensed Aggregate | 20420E 32222 | 5 40 | Specific locations TBD (Staked by ER) 10' depth, specific locations to be determined/ staked by E.R. |

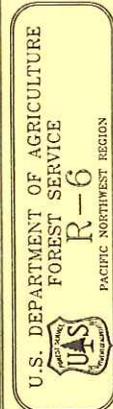


PLAN VIEW
(NOT TO SCALE)



PROFILE VIEW
(NOT TO SCALE)

ROAD 2700-026/ 028 JCT

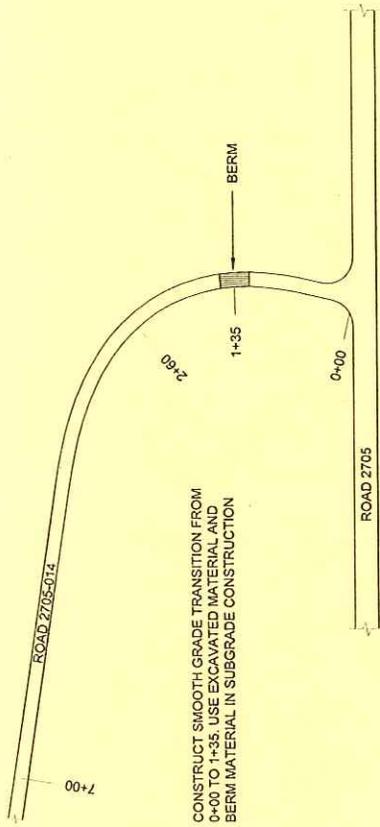


| | |
|--------------|--------------------|
| Sheet Title | ROAD 2700-012/ 026 |
| Score | N/A |
| Sheet | 5 of 18 |
| WORK SUMMARY | |

| | |
|--------------|------------------|
| Forest | OCHOCO |
| Project Name | NaCl TIMBER SALE |

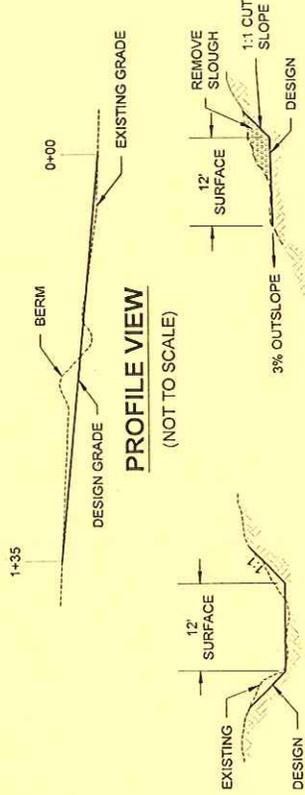
ROAD 2705-014

| STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE |
|------|---|----------------|--------------|----------|
| 0+00 | BEG: PROJECT Clearing and Grubbing Roadway Excavation | 20103 20402 | 0.13 0.13 | Mt Mt |
| 7+00 | END: Clearing and Grubbing END: Roadway Excavation | 20103 20402 | | E O P |



PLAN VIEW
(NOT TO SCALE)

CONSTRUCT SMOOTH GRADE TRANSITION FROM 0+00 TO 1+35. USE EXCAVATED MATERIAL AND BERM MATERIAL IN SUBGRADE CONSTRUCTION

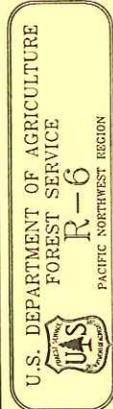


PROFILE VIEW
(NOT TO SCALE)

X-SECTION
STATION 0+00 - 1+35

X-SECTION
STATION 1+35 - 7+00

ROAD 2705-014 RECONSTRUCTION DETAIL



| | | | |
|--------------|------------------|--------------|---------------|
| Forest | OCHOCO | Sheet Title | ROAD 2705-014 |
| Project Name | NaCl TIMBER SALE | WORK SUMMARY | |
| | | Sheet | 6 of 18 |
| | | Scale | N/A |

ROAD 2705-016

| STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE | STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE |
|-------|---|---------------------------|--------------|----------------|--------|---|----------------|------|---|
| 0+00 | BEG: PROJECT Clearing and Grubbing Roadway Excavation | 20103 20402 | 2.87 2.87 | Mi Mi | 81+80 | END: Screened Aggregate | 32222 | | |
| 4+85 | Reconstruct Drain Dip Screened Aggregate | 20420A 32222 | 1 30 | EA CY | 85+40 | Construct Cross Ditch | 20420E | 1 | EA |
| 8+20 | Construct Drain Dip Screened Aggregate | 20420B 32222 | 1 30 | EA CY | 105+10 | BEG: Screened Aggregate | 32222 | 75 | CY |
| 11+45 | BEG: Screened Aggregate Reconstruct Drain Dip | 20420B 32222 | 1 30 | EA CY | 105+90 | END: Screened Aggregate | 32222 | | Widen curve left. |
| 14+45 | END: Screened Aggregate | 32222 | 157 | CY | 110+35 | | | | 10" Depth |
| 18+70 | Construct Drain Dip Screened Aggregate Construct Lead-Off-Ditch | 20420B 32222 20420D | 1 30 1 | EA CY EA | 136+00 | BEG: Screened Aggregate | 32222 | 185 | CY |
| 17+40 | BEG: Screened Aggregate | 32222 | 915 | CY | 146+35 | END: Screened Aggregate | 32222 | | 12" Depth |
| 25+00 | Reconstruct Drain dip | 20420C | 1 | EA | 146+00 | BEG: Screened Aggregate | 32222 | 210 | CY |
| 27+70 | Reconstruct Drain Dip Screened Aggregate | 20420A 32222 | 1 30 | EA CY | 147+50 | Construct Cross Ditch | 20420E | 1 | EA |
| 34+90 | END: Screened Aggregate | 32222 | | | 150+00 | END: Screened Aggregate | 32222 | | See sheet 15 |
| 39+70 | BEG: Screened Aggregate Reconstruct Drain Dip | 32222 20420A | 90 1 | CY EA | 151+30 | END: Clearing and Grubbing END: Roadway Excavation | 20103 20402 | | E.O.P., Jct Road 2705 (North End) |
| 41+80 | END: Screened Aggregate | 32222 | | | | | | | |
| 65+00 | | | | | | | | | |
| 65+30 | BEG: Screened Aggregate | 32222 | 862 | CY | | | | | 10" depth, specific locations to be determined/ staked by E.R. Specific locations TBD (Staked by ER) |
| 68+00 | | | | | | | | | |
| 71+80 | Construct Cross Ditch | 20420E | 1 | EA | | | | | |
| 73+80 | Construct Cross Ditch | 20420E | 1 | EA | | | | | |
| 78+50 | Construct Cross Ditch Construct Lead-Off-Ditch | 20420E 20420D | 1 1 | EA EA | | | | | |



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

OCHOCO
Project Name NaCl TIMBER SALE

Sheet Title ROAD 2705-016
WORK SUMMARY
Scale N/A Sheet 7 of 18

ROAD 2705-037

| STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE | STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE |
|-------|---|--------------------------|--------------|----------------|-------|--|-------------------------|---------|--------------------------------------|
| 0+00 | BEG. PROJECT Clearing and Grubbing Roadway Excavation | 20103 20402 | 1.19 1.19 | MI MI | 51+95 | Install 35" X 24" Culvert | 80201 | 30 | FT |
| 4+05 | BEG: Screened Aggregate | 32222 | 1103 | CY | 53+55 | Construct Cross Ditch | 20420E | 1 | EA |
| 4+30 | Construct Cross Ditch | 20420E | 1 | EA | 55+40 | | | | Fence |
| 13+95 | Construct Cross Ditch | 20420E | 1 | EA | 59+60 | Construct Cross Ditch | 20420E | 1 | EA |
| 15+30 | Construct Drivable Ford Placed Riprap, Class 1 Screened Aggregate | 20420F 25101 32222 | 1 6 30 | EA CY CY | 60+30 | Construct Drain Dip Screened Aggregate | 20420B 32222 | 1 20 | EA CY |
| 16+30 | Construct Cross Ditch | 20420E | 1 | EA | 61+70 | | | | Armor drain dip, 10" Total depth |
| 18+55 | Construct Drain Dip Screened Aggregate | 20420B 32222 | 1 20 | EA CY | 62+75 | END: Clearing and Grubbing END: Roadway Excavation END: Screened Aggregate | 20103 20402 32222 | | Existing turn-around right E.O.P. |
| 26+25 | Construct Drain Dip Screened Aggregate | 20420B 32222 | 1 20 | EA CY | | | | | |
| 28+15 | Construct Drivable Ford Placed Riprap, Class 1 Screened Aggregate | 20420F 25101 32222 | 1 6 30 | EA CY CY | | | | | |
| 29+20 | Construct Drivable Ford Placed Riprap, Class 1 Screened Aggregate | 20420F 25101 32222 | 1 6 30 | EA CY CY | | | | | |
| 31+70 | Construct Cross Ditch | 20420E | 1 | EA | | | | | |
| 33+10 | Construct Drain Dip | 20420B | 1 | EA | | | | | |
| 35+10 | Install 35" X 24" Culvert | 60201 | 30 | FT | | | | | |
| 40+40 | Construct Cross Ditch | 20420E | 1 | EA | | | | | |
| 42+40 | Construct Drain Dip Screened Aggregate | 20420B 32222 | 1 20 | EA CY | | | | | |
| 45+80 | Construct Cross Ditch | 20420E | 1 | EA | | | | | |
| 48+60 | Construct Cross Ditch Construct Lead-Off-Ditch | 20420E 20420D | 1 1 | EA EA | | | | | |

Forest
Project Name
OCHOCO
NaCl TIMBER SALE

Sheet Title
ROAD 2705-037
WORK SUMMARY

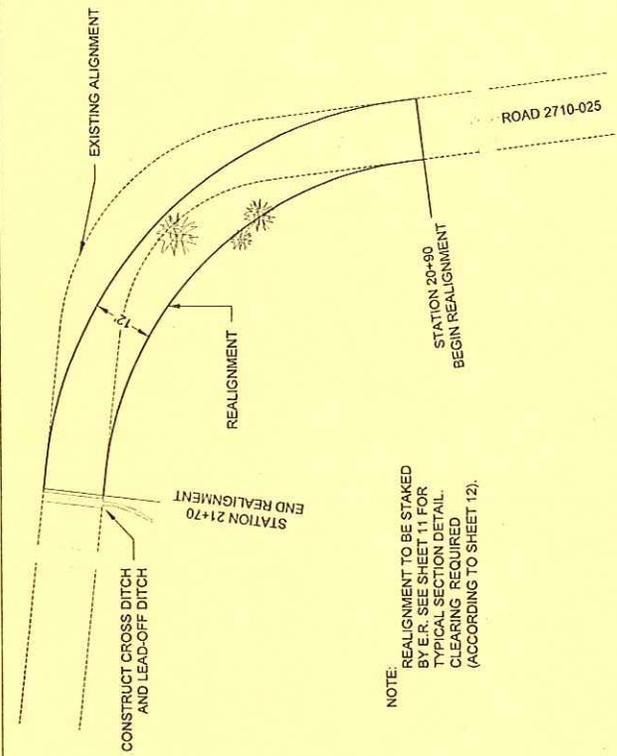
Scale
N/A

Sheet
8 of 18

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

ROAD 2710-025

| STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE | STA | DESCRIPTION OF WORK | PAY ITEM | QUAN | NOTE | |
|-------|---|------------------|--------------|----------|--|---------------------|---|----------------|------|--|
| 0+00 | BEG: PROJECT Clearing and Grubbing Roadway Excavation | 20103 20402 | 0.66 0.66 | Mi Mi | JCT Road 2710 See sheet 12 See sheet 11 | 25+00 | END: Screened Aggregate | 32222 | 100 | CY |
| 1+54 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | 35+00 | END: Clearing and Grubbing END: Roadway Excavation | 20103 20402 | | End project |
| 2+20 | BEG: Screened Aggregate | 32222 | 170 | CY | 10' Depth. At road 2710-027 junction | | Screened Aggregate | 32222 | | 10" depth, specific locations to be determined and staked by ER. |
| 2+90 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | | | | | |
| 4+25 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | | | | | |
| 5+20 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | | | | | |
| 6+20 | END: Screened Aggregate | 32222 | | | | | | | | |
| 7+20 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | | | | | |
| 8+20 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | | | | | |
| 9+65 | Construct Cross Ditch | 20420E | 1 | EA | At existing cross ditch | | | | | |
| 11+00 | Construct Cross Ditch | 20420E | 1 | EA | | | | | | |
| 13+40 | Construct Cross Ditch | 20420E | 1 | EA | | | | | | |
| 13+90 | Construct Cross Ditch | 20420E | 1 | EA | | | | | | |
| 15+40 | Construct Cross Ditch | 20420E | 1 | EA | | | | | | |
| 18+40 | Construct Cross Ditch | 20420E | 1 | EA | | | | | | |
| 20+00 | | | | | Begin alignment correction. See detail this sheet. | | | | | |
| 21+70 | Construct Cross Ditch Construct Load-Off-Ditch | 20420E 20420D | 1 1 | EA EA | End alignment correction | | | | | |
| 22-30 | Construct Cross Ditch Construct Load-Off-Ditch | 20420E 20420D | 1 1 | EA EA | 25' Left 25' Left | | | | | |
| 24+00 | BEG: Screened Aggregate | 32222 | 45 | CY | 10' depth | | | | | |



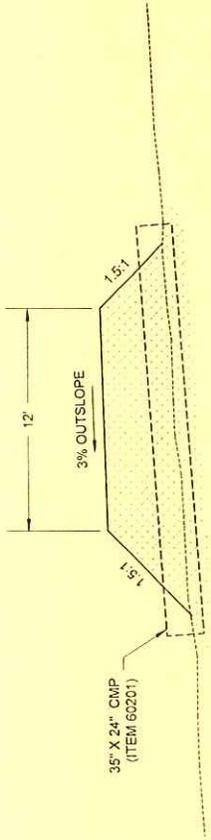
ROAD 2710-025 ALIGNMENT CORRECTION

| | |
|--------------|---------------|
| Sheet Title | ROAD 2710-025 |
| Work Summary | WORK SUMMARY |
| Scale | N/A |
| Sheet | 9 of 18 |

| | |
|--------------|------------------|
| Forest | OCHOCO |
| Project Name | NaCl TIMBER SALE |

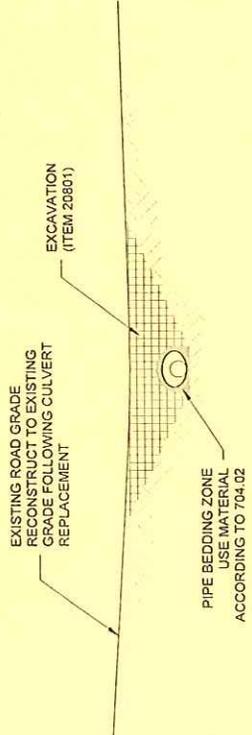


U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-6
PACIFIC NORTHWEST REGION



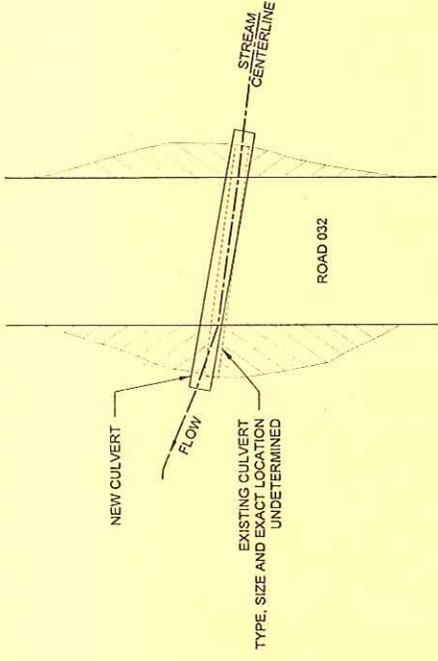
CROSS SECTION VIEW

(NOT TO SCALE)



PROFILE VIEW

(NOT TO SCALE)



PLAN VIEW

(NOT TO SCALE)

CULVERT INSTALLATION NOTES

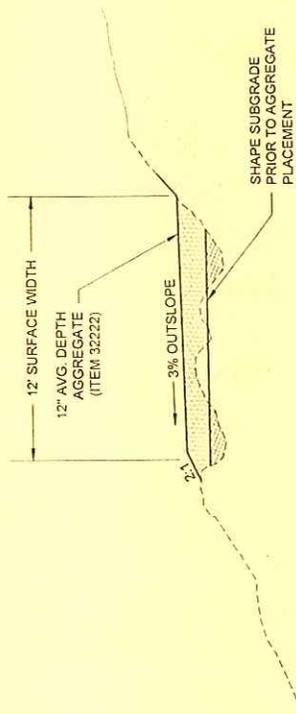
- 1) CLEAR ACCORDING TO SHEET 12, PILE CLEARING SLASH AT DESIGNATED LOCATIONS (STAKED BY ER)
- 2) SORTING OF EXISTING FILL MATERIAL AND OBTAINED FILL MATERIAL REQUIRED TO MEET MATERIAL SPECIFICATIONS 704.02
- 3) UTILIZE EXISTING MATERIAL FOR CULVERT BEDDING MATERIAL OR USE CRUSHED AGGREGATE OBTAINED FROM HIGHLAND MATERIAL SOURCE. (CRUSHED AGGREGATE IS INDIRECT TO ITEM 60201)
- 4) CULVERT SKEW, INLET AND OUTLET ELEVATIONS, AND EXACT CULVERT LENGTH TO BE STAKED BY E.R. PRIOR TO COMMENCEMENT OF CULVERT INSTALLATION ACTIVITIES.
- 5) UNSUITABLE EXCAVATED MATERIAL SHALL BE HAULED TO HIGHLAND MATERIAL SOURCE (ITEM 20416)
- 6) USE 3" SCREENED AGGREGATE (ITEM 32222) FOR REPLACEMENT FILL
- 7) REMOVE THE EXISTING CULVERT AND ASSOCIATED COMPONENTS FROM GOVERNMENT LAND (ITEM 20304)

ROAD 2705-032 CULVERT REPLACEMENT

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

Forest
OCHOCO
 Project Name
 NaCl TIMBER SALE

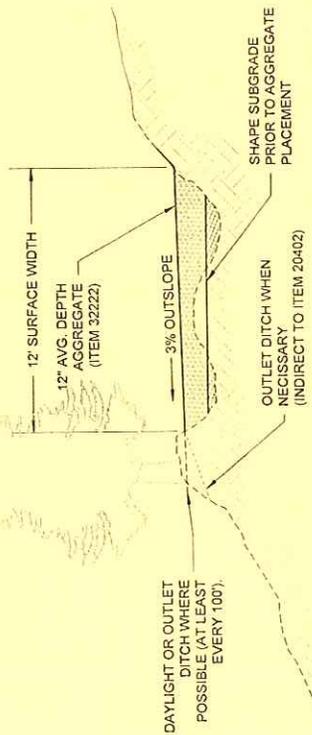
Sheet Title
 ROAD 2705-032
 CULVERT REPLACEMENT
 Scale
 N/A
 Sheet
 10 of 18



OUTSIDE BERM SECTION ROAD TYPICAL

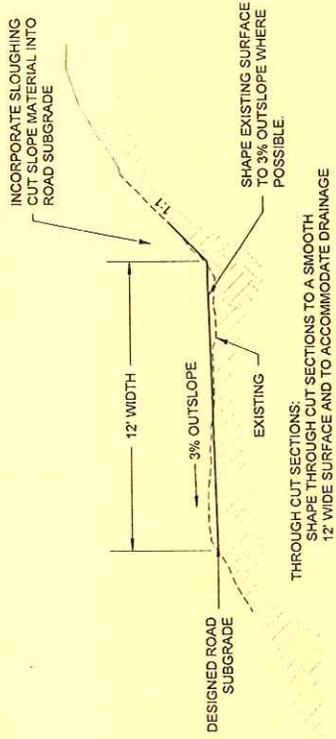
(NOT TO SCALE) ITEM 20402 & 32222

ROADWAY TYPICAL SECTIONS
PREPARE SUBGRADE, PLACE AGGREGATE AND
SHAPE SURFACE AS SPECIFIED AND ACCORDING
TO THE APPROPRIATE TYPICAL SECTION.
AGGREGATE DEPTHS SPECIFIED IN WORK
SUMMARY SHEETS.



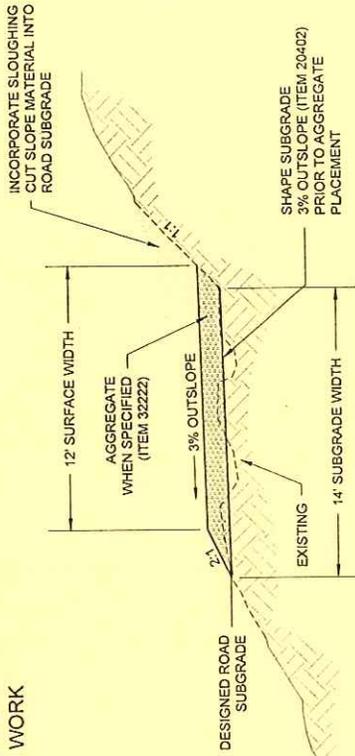
DEEP BERM SECTION ROAD TYPICAL

(NOT TO SCALE) ITEM 20402 & 32222



STANDARD ROADWAY TYPICAL

(NOT TO SCALE) ITEM 20402



AGGREGATE PLACEMENT TYPICAL

(NOT TO SCALE) ITEM 20402 & 32222

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

Forest: **OCHOCO**
Project Name: NaCl TIMBER SALE

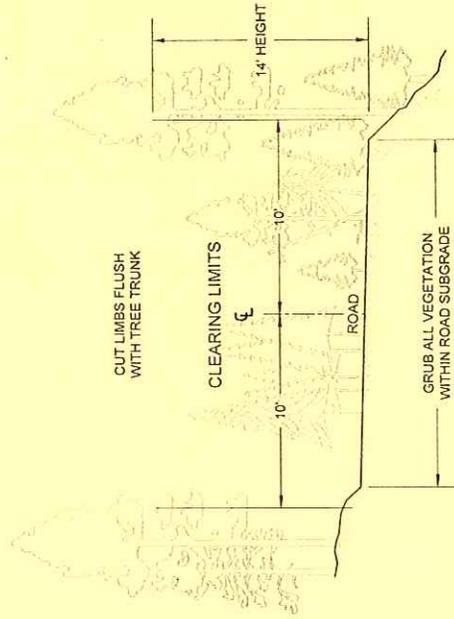
Sheet Title: ROADWAY TYPICALS
Scale: N/A
Sheet: 11 of 18

WATER SOURCE DEVELOPMENT NOTES

Whiskey Matorial Source pond is the primary water source. Frog Pond is an alternate water source allowed with the following specific conditions: Withdrawal should not exceed 1/4 of the flow during the spawning or incubation period of redband trout (April 15 - July 15th). After July 15, retention of 50% of the base flow should be sufficient. This is necessary to maintain wildlife and aquatic populations that are dependent on critical base flow. No withdrawals will be permitted from any stream when the flow falls below 1 CFS (approximately 8 gals/sec). Pumping or damming activities which elevate a stream will not be allowed. Furthermore, water should not be withdrawn during periods when stream temperatures exceed state water quality standards. Pumping equipment is necessary at both specified water sources.

WATER SOURCE DEVELOPEMENT

(ITEM 17003)



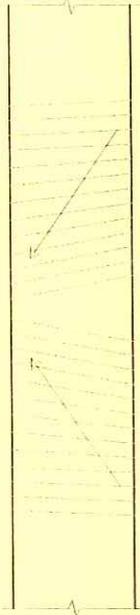
CLEARING AND GRUBBING LIMITS

(NOT TO SCALE)

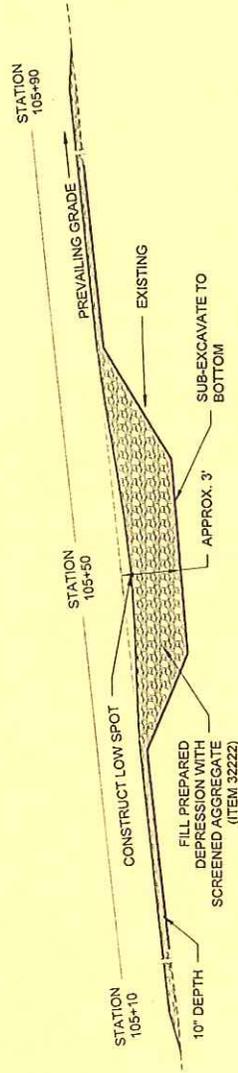
ITEM 20102 & 20103

APPLIES TO ALL ROADS UNLESS OTHERWISE SPECIFIED

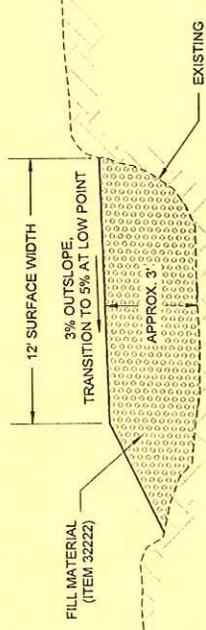
TRANSITION TO 5% OUTSLOPE AT LOW POINT



PLAN VIEW
(NOT TO SCALE)



PROFILE VIEW
(NOT TO SCALE)



CROSS SECTION VIEW
(NOT TO SCALE)

ROAD 2705-016 ROADWAY DEPRESSION AT STATION 105+50

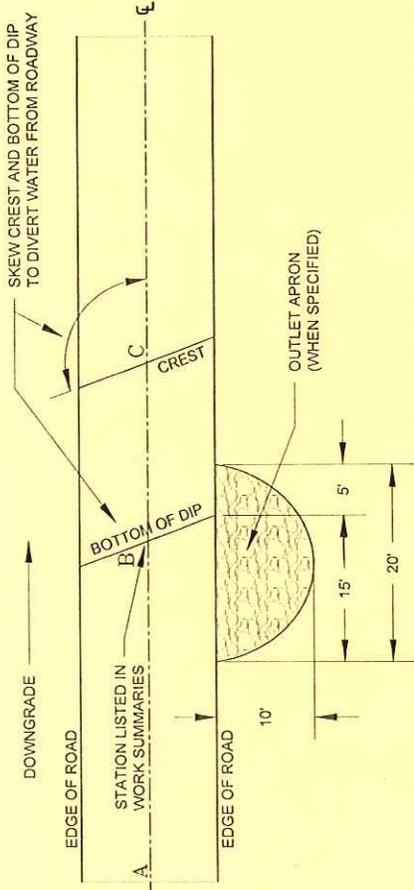
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-6
PACIFIC NORTHWEST REGION

Forest: **OCHOCO**
Project Name: **NaCl TIMBER SALE**

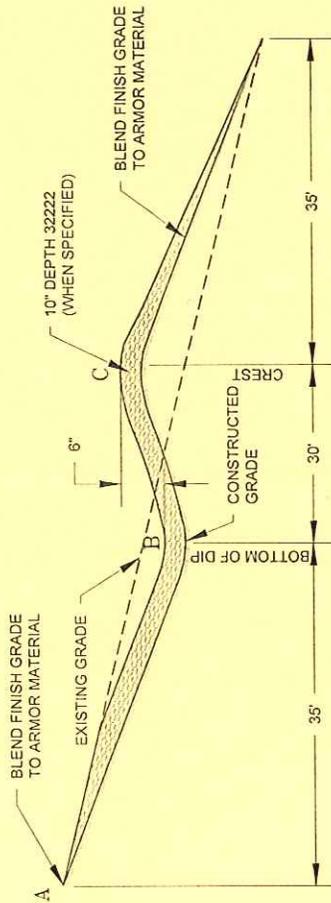
Sheet Title: **CLEARING & DETAILS**
Scale: **N/A**
Sheet: **12** of **18**

DRAIN DIP & ARMOR DETAILS (ITEM 20420A&B)

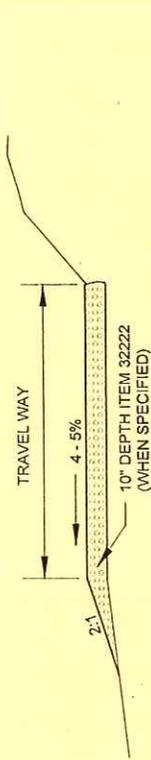
NOTE: DRAWING IS NOT TO SCALE
VERTICAL SCALE IS EXAGGERATED



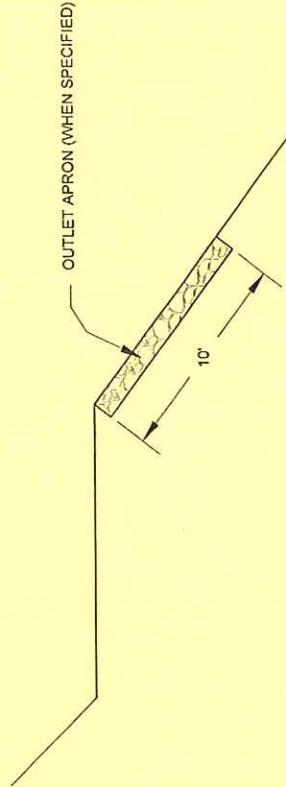
PLAN VIEW



PROFILE VIEW



TYPICAL SECTIONS



GENERAL NOTES

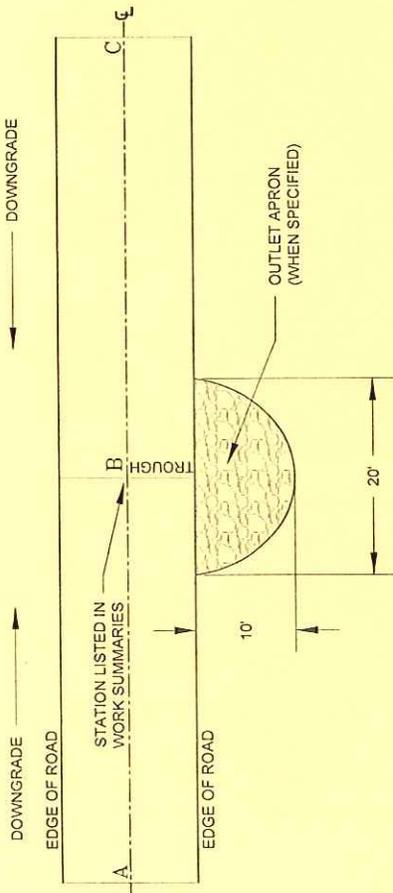
- 1) BUILD AND SHAPE SUBGRADE PRIOR TO ARMORING.
- 2) KEY CREST AND SUBGRADE ARMOR INTO CUT SLOPE.
- 3) STATION IN WORK SUMMARY IS THE BOTTOM OF DIP.
- 4) SUBEXCAVATE 12" FOR OUTLET APRONS. UNSUITABLE MATERIAL TO BE SPREAD OUT EVENLY ON ADJACENT FILL SLOPE.
- 5) EXCAVATION CONSTRUCTION TOLERANCE B.
- 6) COMPACTION METHOD B.
- 7) REFER TO WORK SUMMARIES FOR DIPS RECEIVING ARMOR.

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

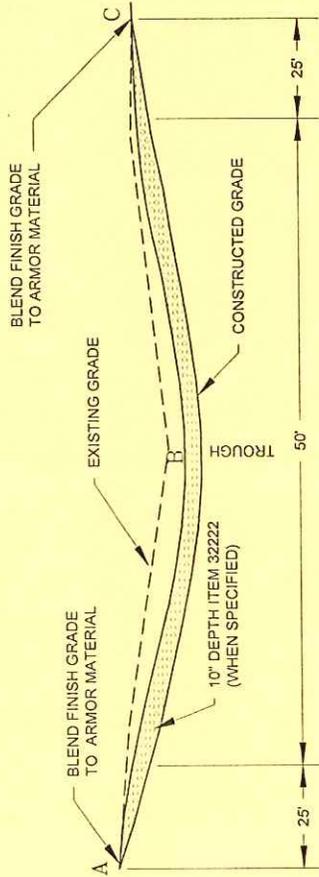
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|--------|--------------|----------|
| Forest | Project Name | Sheet |
| OCHOCO | N/A | 13 of 18 |
| Scale | Sheet Title | |
| N/A | DRAIN DIP | |

DRAIN SAG & ARMOR DETAILS (ITEM 20420C)

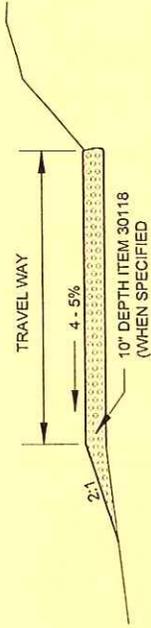
NOTE: DRAWING IS NOT TO SCALE
VERTICAL SCALE IS EXAGGERATED



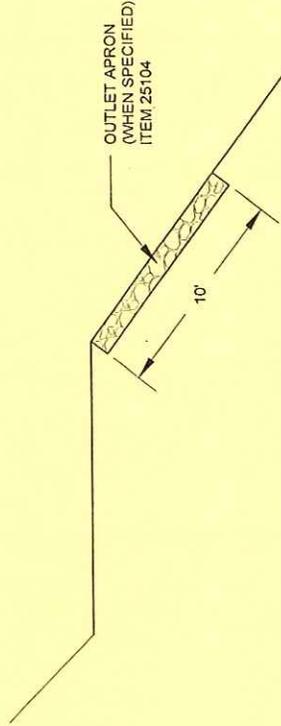
PLAN VIEW



PROFILE VIEW



TYPICAL SECTION

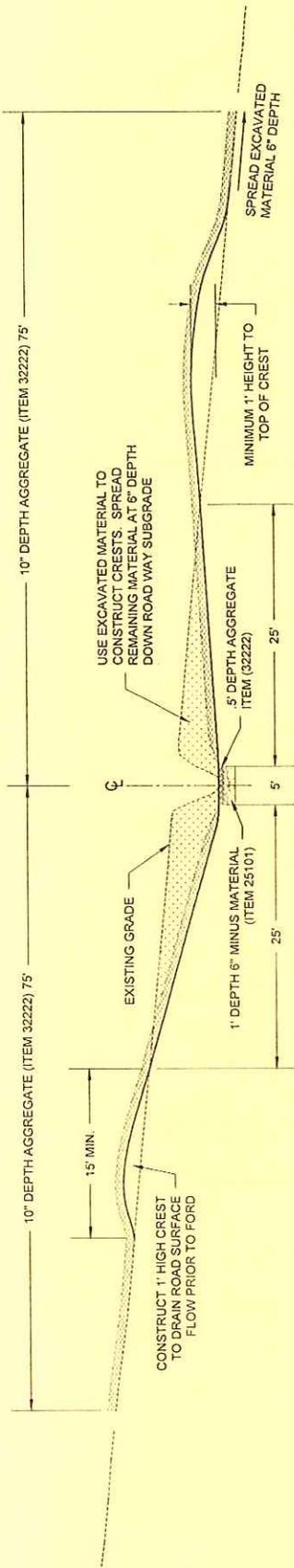


GENERAL NOTES

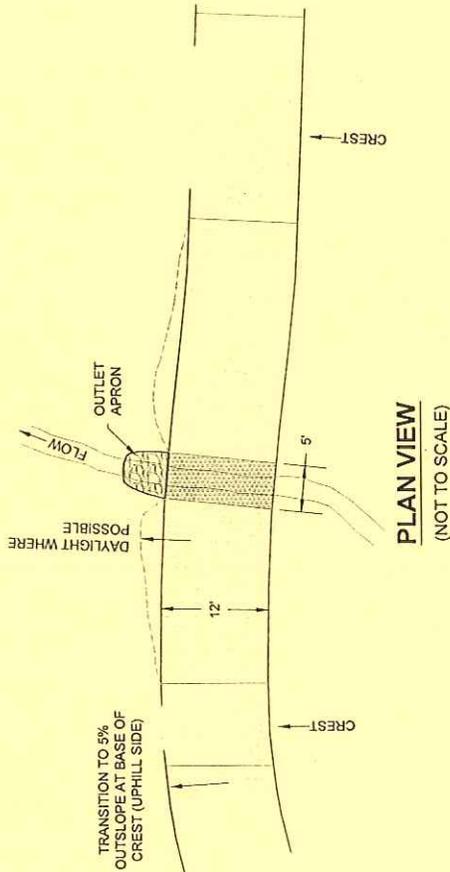
- 1) BUILD AND SHAPE SUBGRADE PRIOR TO ARMORING.
- 2) KEY CREST AND SUBGRADE ARMOR INTO CUT SLOPE.
- 3) REFER TO WORK SUMMARIES FOR SAGS RECEIVING ARMOR.
- 4) STATION IN WORK SUMMARY IS THE TROUGH.
- 5) CONSTRUCTION TOLERANCE B.
- 6) COMPACTION METHOD B.

| | | | |
|--------------|------------------|-------------|-----------|
| Forest | OCHOCO | Sheet Title | DRAIN SAG |
| Project Name | NaCl TIMBER SALE | Scale | N/A |
| | | Sheet | 14 of 18 |

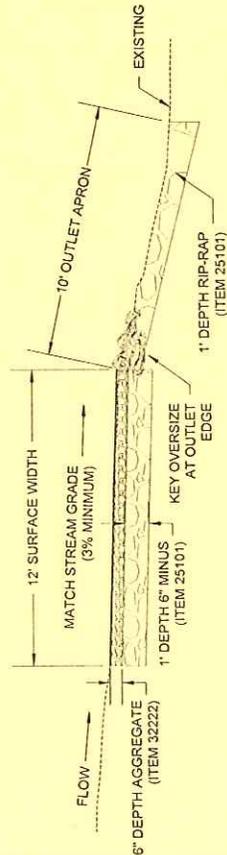
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-6
PACIFIC NORTHWEST REGION



PROFILE VIEW
(NOT TO SCALE)



PLAN VIEW
(NOT TO SCALE)



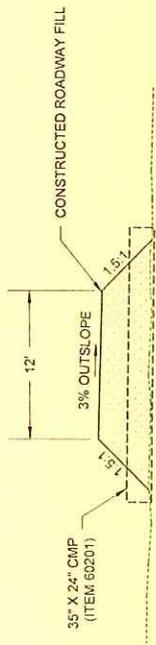
CROSS SECTION VIEW
AT STREAM CENTERLINE
(NOT TO SCALE)

DRIVABLE FORD
(ITEM 20420F)

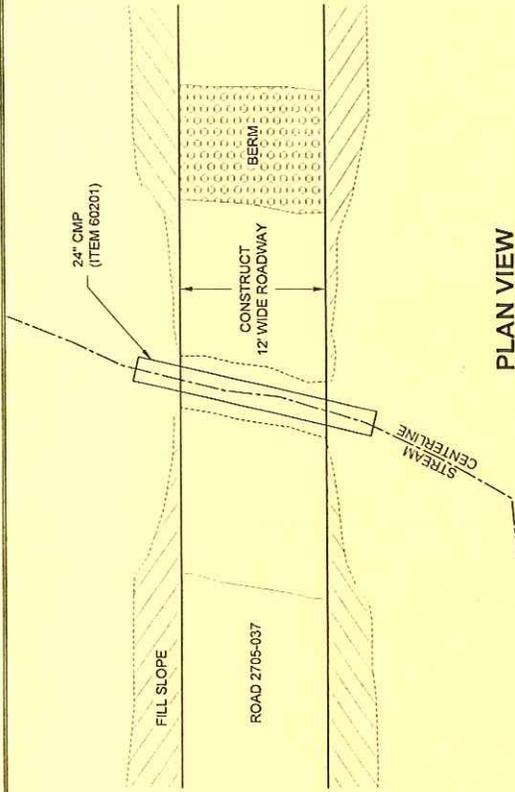
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|--------------|------------------|-------------|----------------------|
| Forest | OCHOCO | Sheet Title | DRIVABLE FORD DETAIL |
| Project Name | NaCl TIMBER SALE | Scale | N/A |
| | | Sheet | 16 of 18 |

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

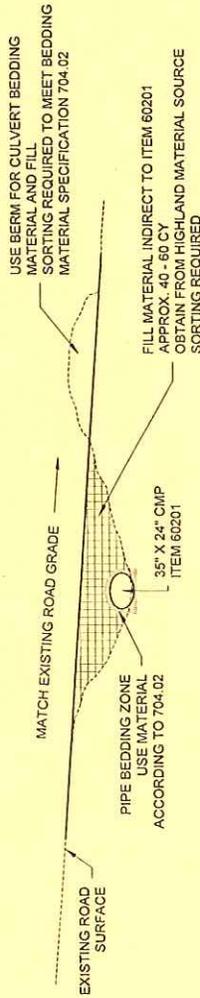




CROSS SECTION VIEW
(NOT TO SCALE)



PLAN VIEW
(NOT TO SCALE)



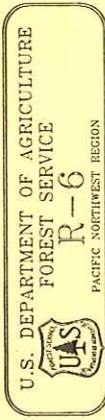
PROFILE VIEW
(NOT TO SCALE)

CULVERT INSTALLATION NOTES

- 1) FILL MATERIAL, BEDDING MATERIAL, EXCAVATION AND BED PREPARATION ARE INCIDENTAL TO CULVERT ITEM 60201.
- 2) SORTING OF EXISTING FILL MATERIAL AND OBTAINED FILL MATERIAL REQUIRED TO MEET MATERIAL SPECIFICATION 704.02
- 3) UTILIZE EXISTING MATERIAL FOR CULVERT BEDDING MATERIAL OR USE CRUSHED AGGREGATE OBTAINED FROM HIGHLAND MATERIAL SOURCE.
- 4) CULVERT SKEW, INLET AND OUTLET ELEVATIONS, AND EXACT CULVERT LENGTH TO BE STAKED BY E.R. PRIOR TO COMMENCEMENT OF CULVERT INSTALLATION ACTIVITIES.

ROAD 2705-037 CULVERT INSTALLATION

ITEM 60201 AT STATION 35+10 & 51+95



Forest
Project Name NaCl TIMBER SALE

OCHOCO

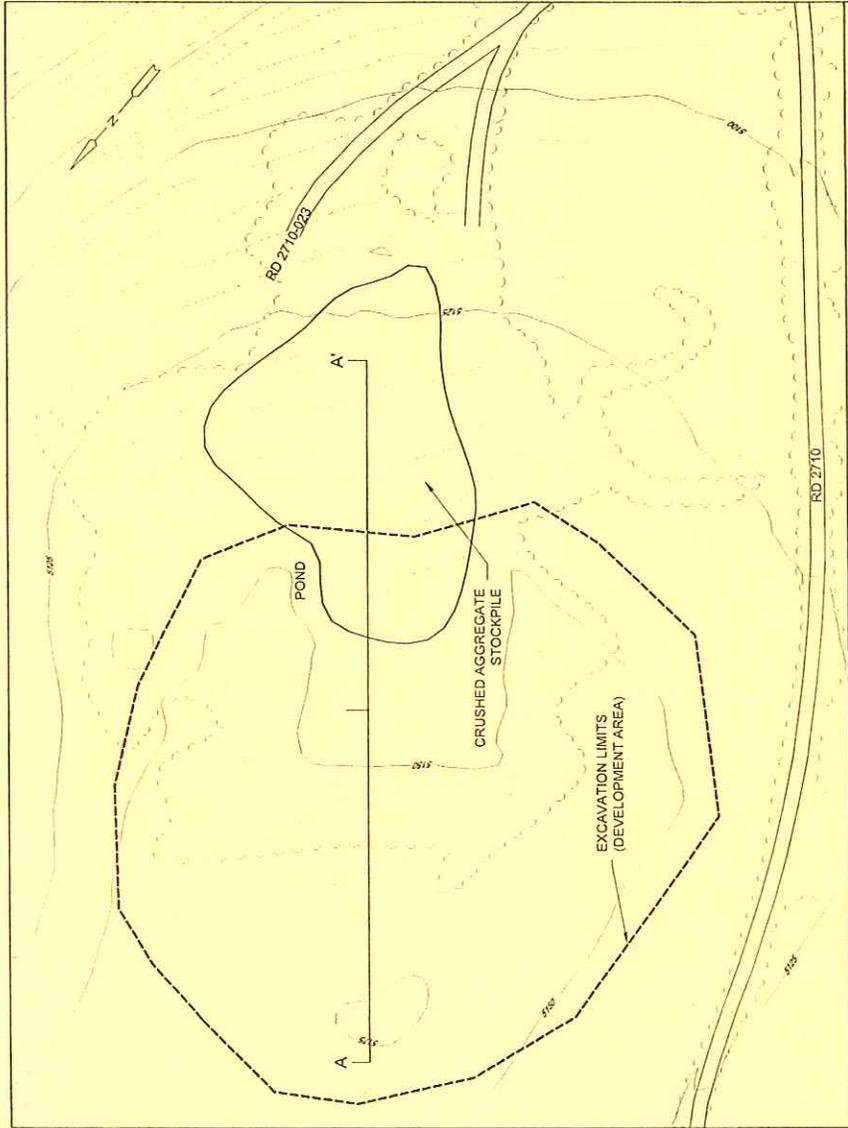
Sheet Title ROAD 2705-037 CULVERT INSTALLATION

Scale N/A

Sheet 17 of 18

HIGHLAND MATERIAL SOURCE

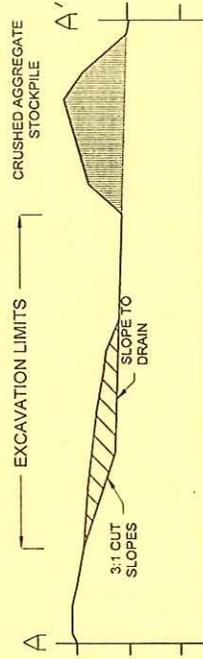
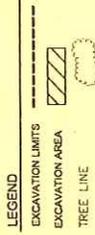
T. 12S. R. 17 E. SEC. 23 NW SW W.M.



NOT TO SCALE

DEVELOPMENT PROVISIONS

1. CONTRACTOR SHALL DISPOSE OF ALL INDUSTRIAL WASTE AND OTHER MATERIALS USED AT THE SITE BY REMOVAL FROM NATIONAL FOREST LAND.
2. STRIP AND PUSH OVERBURDEN MATERIAL OUTSIDE OF DEVELOPMENT AREA REQUIRED TO OBTAIN MATERIAL VOLUME FOR THIS PROJECT.
3. CLEAR ALL VEGETATION WITHIN SPECIFIED DEVELOPMENT AREA, INCLUDING THE DEVELOPMENT AREA OUTSIDE OF THE AREA REQUIRED TO OBTAIN MATERIAL FOR THIS CONTRACT. THE DEVELOPMENT AREA IS DEFINED ON THE GROUND AS A SEPARATE TIMBER SALE CUTTING UNIT. CLEAR ALL VEGETATION ACCORDING TO CONTRACT SPECIFICATIONS. REMOVE MERCHANTABLE TIMBER ACCORDING TO THE TIMBER SALE PROVISIONS. NON-MERCHANTABLE SLASH SHALL BE PILED AS STAKED BY THE E.R.
4. DEPTH OF QUARRY FLOOR SHALL NOT GO BELOW THE LEVEL SHOWN ON THE DRAWINGS.
5. CONTRACTOR SHALL MAINTAIN THE RD. 2710-023 AND RESHAPE AT THE CONCLUSION OF OPERATIONS.
6. EXCAVATION SHALL BE CONFINED TO THE AREA SHOWN ON THE SHORT-TERM DEVELOPMENT PLAN.
7. CUT SLOPES SHALL BE LEFT AT NO STEEPER THAN 3 (HORIZONTAL) TO 1 (VERTICAL).
8. FLOOR SHALL BE SLOPED TO DRAIN TO THE SOUTH EAST.
9. WASTE DISPOSAL LOCATION SHALL BE STAKED BY E.R. PILES SHALL BE CONSOLIDATED AND SHAPED FOLLOWING WASTE MATERIAL PLACEMENT.
10. OPERATOR SHALL COORDINATE WITH THE E.R. TO ACCOMMODATE RANGE PERMITTEE USE IN THE MATERIAL SOURCE DURING OPERATIONS. SEE FSSS 104.07.



TYPICAL CROSS SECTION
NOT TO SCALE

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| Sheet Title | HIGHLAND |
| MATERIAL SOURCE | |
| Scale | VARIES |
| Sheet | 18 of 18 |

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|--------------|------------------|
| Forest | OCHOCO |
| Project Name | NaCl TIMBER SALE |

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FOREST SERVICE
R-6
PACIFIC NORTHWEST REGION