SPECIAL CONTRACT REQUIREMENTS FOR THE CONSTRUCTION OF

CASH CREEK TRIBUTARY AOP

Description of Work

Project consists of replacing an existing corrugated metal pipe (CMP) culvert (36" diameter x 35' length) with a 18'-0" span x 5'-9" rise x 60'-0" length structural plate arch culvert on cast-in-place (or precast) concrete footings. Work includes but is not limited to; temporary traffic control, construction survey and staking of road and culvert, clearing and grubbing, soil erosion and pollution control, dewatering of stream, structural excavation, reinforced concrete footing/stemwall construction, placing stream simulation rock, placing channel rocks, placing riprap, installing structural plate arch culvert, roadway excavation and embankment, waste removal, placing aggregate base, aggregate surface rock, seeding and mulching.

Applicable Standard Specifications

The General Requirements (Division 100) and the applicable sections of Divisions 150 through 700 of the Federal Highway Administration's "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14, U.S. Customary Units" of the U.S. Department of Transportation, Federal Highway Administration apply to this project as modified by these Special Contract Requirements and Contract Clauses contained in the contract. Unless otherwise noted, all reference headings in these Special Contract Requirements refer to divisions, sections, subsections, articles or paragraphs of the Standard Specifications, FP-14. The Contractor shall keep a copy of FP-14 on site during all construction for this project.

The FP-14 is a separately published book by the Federal Lands Highway. To download FP-14 or to obtain a hard copy, visit:
http://flh.fhwa.dot.gov/resources/pse/specs/fp-14.htm

PREFACE

Delete the Preface and substitute the following:

These Standard Specifications for the Construction of Roads and Bridges on Federal Highway Projects are issued primarily for constructing roads and bridges on Federal Highway projects under the direct administration of the Bureau of Land Management. These specifications are cited as "*FP-14*" indicating "*Federal Project*" Standard Specifications issued in 2014 and contain both United States Customary and Metric units of measure.

When designated in a contract, the FP-14 becomes part of the contract and binding upon all parties to the contract. Construction contracts of the Bureau of Land Management are also governed by the following regulations:

- Federal Acquisition Regulation (FAR), Title 48, Code of Federal Regulations, Chapter 1

The FAR regulations are not included in the FP-14. A complete copy of the FAR is available from the Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402.

U.S. Customary units of measure are used in the FP-14 as provided in the November 25, 2008 Memorandum from Jeffrey F. Paniati entitled *Update on Metric Use Requirements for FHWA Documents*. Metric units are noted in parentheses following the U.S. Customary Units. The references to Metric or Metric units apply only when the project or portion of the project expressly calls for Metric units of measure.

DIVISION 100
GENERAL REQUIREMENTS

Section 101. – TERMS, FORMAT AND DEFINITIONS

101.01 Meaning of Terms. Add the following:

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

101.03 Abbreviations. Add the following to (a) Acronyms:

AA	Aluminum Association
AAN	American Association of Nurserymen
AAR	Association of American Railroad
ABA	Architectural Barriers Act
ACPA	American Concrete Pavement Association
ADA	Americans with Disabilities Act
AFPA	American Forest and Paper Association
AI	Asphalt Institute
AIA	American Institute of Architects
ARA	American Railway Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASCII	American Standard Code for Information Interchange
ASLA	American Society of Landscape Architects
BLM	Bureau of Land Management
FTMS	Federal Test Method Standard
GSA	General Services Administration
IEEE	Institute of Electrical and Electronic Engineers
MIL	Military Specifications
MSHA	Mine Safety and Health Administration
NESC	National Electrical Safety Code
NFPA	National Forest Products Association
PCA	Portland Cement Association
SAE	Society of Automotive Engineers
USFS	United States Forest Service
USGS	United States Geological Survey
USPS	United States Postal Service
WCLIB	West Coast Lumber Inspection Bureau
WWPI	Western Wood Preservers Institute

Add the following to (b) U.S. Customary unit abbreviations and symbols:

hr	Hour
mp	Milepost
ppm	Part Per Million

101.04 Definitions. Delete the definitions for the following terms:

Bid

Bidder

Modify the following definitions as follows:

Contract Time – Delete this definition and substitute the following:

Period of Performance (POP) – The specified time allowed for completion of contract work.

Notice to Proceed – Delete this definition and substitute the following:

Notice to Proceed – Written notice from the Contracting Officer to the Contractor to begin the contract work.

Add the following:

Maximum Particle Size – The smallest sieve opening through which all particles in the material will pass.

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.

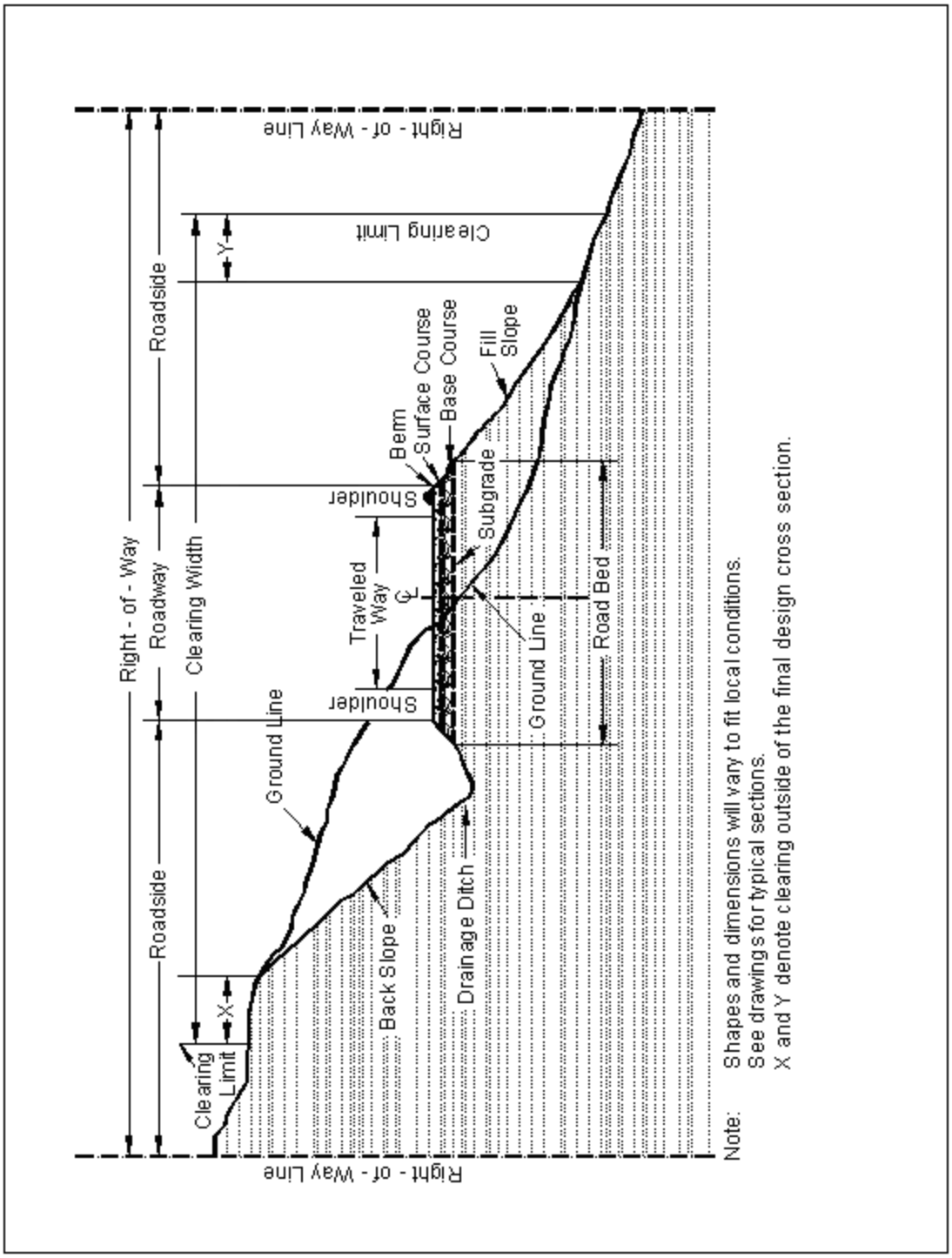
Protected Streamcourse – A drainage shown on the plans that requires designated mitigation measures.

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.

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.



Section 102. – BID, AWARD, AND EXECUTION OF CONTRACT

Delete this section in its entirety.

Section 103. – SCOPE OF WORK

103.02 Disputes. Delete in its entirety.

103.03 Value Engineering. Delete in its entirety.

103.04 Contractor Records. Delete in its entirety.

Section 104. – CONTROL OF WORK

104.01 Authority of the Contracting Officer (CO). Delete in its entirety.

104.02 Authority of Inspectors. Delete in its entirety.

104.03 Specifications and Drawings.

(c) As-built drawings. Modify the first sentence to read as follows: Use one set of Contractor-provided plans exclusively for as-built drawings.

(d) Submittals. Add this section:

1. Schedule for Construction
2. Hazardous Spill Plan
3. Traffic Control Plan
4. Fire Plan
5. Dewatering and Sediment Control Plan
6. Cast-In-Place Concrete Mix Design
7. 3rd Party Test Results (Air, Slump, Strength) for Cast-In-Place concrete
8. Portland Cement Product Certification
9. Concrete Quality Control Certification
10. Concrete Placement Schedule
11. Aggregate Source & Gradation
12. Stream Simulation Material Source and Gradation
13. Structural Plate Arch Drawings & Calculations
14. Structural Plate Arch Load Rating Report
15. Concrete Mix Design for Prestressed Members
16. Reinforcing Steel Product Certification
17. Structural Steel Fasteners and Hardware Material Certification
18. Weed Free Mulch Certification

104.04 Coordination of Contract Documents. Delete in its entirety.

105 – CONTROL OF MATERIAL

Add the following to Subsection 105.02c:

105.02(c) Contractor-located sources.
All material (e.g., soil, gravel, sand, borrow, aggregate, etc.) transported onto BLM land or incorporated into the work shall be weed-free. The Contracting Officer may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds of concern in the local area.

Section 106. – ACCEPTANCE OF WORK

Delete Subsection 106.01 and replace with the following:

106.01 Conformity with Contract Requirements.
Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

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, repair, or replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted. Removing, repairing, or replacing work; providing temporary traffic control; and any other related work to accomplish conformity will be 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:

Sampling method;
Number of samples;
Sample transport;
Test procedures;
Testing laboratories;
Reporting;
Estimated time and costs; and
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.

Delete Subsection 106.02 and replace with the following:

106.02 Visual Inspection.
Acceptance is based on visual inspection of the work for compliance with the specific contract requirements. Use prevailing industry standards in the absence of specific contract requirements or tolerances.

106.05 Statistical Evaluation of Work and Determination of Pay Factor. Delete in its entirety, including all references to Statistical Evaluation. All references to Section 106.05 shall be replaced with references to Section 106.04 Measured or Tested Conformance.

Section 107. – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01 Laws to be Observed. Delete in its entirety.

107.02 Protection and Restoration of Property and Landscape. Delete in its entirety.

107.03 Bulletin Board. Delete in its entirety.

107.05 Responsibility for Damage Claims. Delete in its entirety.

107.06 Contractor's Responsibility for Work. Delete in its entirety.

107.09 Legal Relationship of the Parties. Delete in its entirety.

107.10 Environmental Protection.

(e) Project specific Environmental Protection. Add this section:

Do not work within wetted perimeter of streams before May 15, or after November 30.

Section 108. – PROSECUTION AND PROGRESS

Delete this section in its entirety.

Section 109. – MEASUREMENT AND PAYMENT

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.

109.03 Weighing Procedures and Devices.

(c) Project weighing system. Add the following:

Manual scales may be used if approved in writing by the CO and if the method of weighing meets all other contract requirements. For aggregates weighed for payment, adjust scale weights of material to deduct the daily average moisture content in excess of 2 percentage points over optimum moisture as determined by AASHTO T 99 or the designated compaction method. If moisture determination is necessary, determine the daily average moisture content in accordance with AASHTO T 255, from not less than three representative samples of aggregate taken at random intervals each day that aggregate is being weighed.

109.06 Pricing of Adjustments. Delete in its entirety.

109.07 Eliminated Work. Delete in its entirety.

109.08 Progress Payments. Delete in its entirety.

109.09 Final Payment. Delete in its entirety.

Section 151. – MOBILIZATION

151.03 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
15101	Mobilization	Lump Sum

152 – CONSTRUCTION SURVEY AND STAKING

Delete Subsection 152.03:

Delete Subsection 152.03.

Add the following to Subsection 152.04(c):

152.04 General.

(c) Material.

Use required stake dimensions and materials. Pre-paint the top 2 inches of all stakes and lath, or mark them with plastic flagging. Use designated colors for paint or flagging. Mark all stakes with a stake pencil that leaves a legible imprint, or with waterproof ink.

Do not use aerosol spray paints.

Use moisture-resistant paper for survey notes. Keep notes in books with covers that will protect the contents and retain the pages in numerical sequence.

Make the following changes to Subsection 152.05:

152.05 Survey and Staking Requirements.

Delete Subsection 152.05(d)(2) and replace with the following:

(d) Slope and reference stakes.

(2) Conventional survey methods. When required, locate slope stakes on designated portions of the road. Locate the slope stake catch points and use them to establish clearing limits and slope stake references.

Mark slope stakes with the station, the amount of cut or fill, the horizontal distance to centerline, and the slope ratios.

Place slope reference stakes at least 10 feet outside the clearing limit and mark with the offset distance to the slope stake. Place sight stakes when required.

Prior to clearing and grubbing operations, move the slope stake outside the clearing limit to the slope reference stake. After clearing and grubbing and before excavation, reset the slope stakes in their original position.

Use the designated method to establish the slope stake catchpoint.

Method I—Computed Method. Use the template information shown in the plans or other Government-provided data to calculate the actual location of the catchpoint. The slope stake "catchpoint distance" provided may be used as a trial location to initiate slope staking.

Recatch slope stakes on any section that does not match the staking report within the tolerances established in Table 152-2.

Method II—Catchpoint Measurement Method. Determine the location of slope stake catchpoints by measuring the catchpoint distances shown in the plans or other Government-provided data.

Add the following to Subsection 152.05(e):

(e) Clearing and grubbing limits.

Mark the clearing limits with flagging or tags on trees to be left standing, or on lath. Make markings intervisible, and no more than 90 feet apart.

After establishing clearing limits, move the location line stake outside the clearing limits for station identification purposes, and mark it with horizontal distance to location line.

Replace Table 152-1 with the following:

Table 152-1 Construction Survey and Staking Tolerances

Table 152-1
Construction Survey and Staking Tolerances (1)

Staking Phase	Horizontal	Vertical
Control points set from existing Government control points- Tolerance Class A	±0.03 feet (±10 millimeters)	±0.01 feet × $\sqrt{N}$ (±3 millimeters × $\sqrt{N}$)(2)
Mapping, topography, and cross-section Points- Tolerance Class A	±0.16 feet (±50 millimeters)	±0.16 feet (±50 millimeters)
Centerline points (3) including (PC), (PT), (POT),(POC), and references- Tolerance Class A	±0.06 feet (±20 millimeters)	±0.06 feet (±20 millimeters)
Slope-stake and slope-stake references- Tolerance Class A (4)	±0.16 feet (±50 millimeters)	±0.16 feet ±50 millimeters)
Culverts, ditches, and minor drainage structures stakes- Tolerance Class A	±0.16 feet (±50 millimeters)	±0.06 feet (±20 millimeters)
Retaining walls stakes	±0.06 feet (±20 millimeters)	±0.03 feet (±10 millimeters)
Curb and gutter stakes	±0.06 feet (±20 millimeters)	±0.03 feet (±10 millimeters)
Bridge substructures stakes	±0.03 feet (±10 millimeters)(5)	±0.03 feet (±10 millimeters)
Bridge superstructures stakes	±0.03 feet (±10 millimeters)(5)	±0.03 feet (±10 millimeters)
Clearing and grubbing limit stakes- Tolerance Class A	±1.00 feet (±300 millimeters)	–
Roadway subgrade finish stakes- Tolerance Class A (6)	±0.16 feet (±50 millimeters)	±0.03 feet (±10 millimeters)
Roadway finish grade stakes (6)	±0.16 feet (±50 millimeters)	±0.03 feet (±10 millimeters)

Table 152-1
Construction Survey and Staking Tolerances (continued) (1)

Staking Phase	Horizontal	Vertical

Control points set from existing Government control points –Tolerance Class B (7)	±0.16 feet (±20 millimeters)	±0.16 feet × $\sqrt{N}$ (±20 millimeters × $\sqrt{N}$)(2)
Mapping, topography, and cross-section points–Tolerance Class B (7)	±1.00 feet (±300 millimeters)	±0.50 feet (±150 millimeters)
Centerline points including (PC), (PT), (POT),(POC), and references–Tolerance Class B (7)	±0.16 feet (±20 millimeters)	±0.16 feet (±20 millimeters)
Slope-stake and slope-stake references–Tolerance Class B (7)	±0.50 feet (±50 millimeters)	±0.16 feet ±50 millimeters)
Culverts, ditches, and minor drainage structures stakes–Tolerance Class B (7)	±0.50 feet (±150 millimeters)	±0.16 feet (±20 millimeters)
Clearing and grubbing limit stakes–Tolerance Class B (7)	±2.00 feet (±600 millimeters)	—
Roadway subgrade finish stakes–Tolerance Class B (7)	±0.50 feet (±50 millimeters)	±0.16 feet (±10 millimeters)
Roadway finish grade stakes–Tolerance Class B (7)	±0.50 feet (±50 millimeters)	±0.16 feet (±10 millimeters)

(1) At statistical 95 percent confidence level. Tolerances are relative to existing Government control points.

(2) N is the number of instrument setups.

(3) Centerline points: PC - point of curve, PT - point of tangent, POT - point on tangent, POC - point on curve.

(4) Take the cross-sections normal to the centerline ±1 degree.

(5) Bridge control is established as a local network and the tolerances are relative to that network.

(6) Includes paved ditches.

(7) Tolerance Class B for Very Low Volume Roads with an aggregate or native finished surface.

152.08 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
15201	Construction Survey and Staking, Method 1, Tolerance A	Lump Sum

153 – CONTRACTOR QUALITY CONTROL

Delete Subsection 153.02 and replace with the following:

153.02 Qualifications.
Submit the following for approval with the quality control plan:

(a) Testers. Provide testers with at least one year experience in the type of sampling and testing required, and with one of the following for the type of sampling and testing performed:

(1) NICET Level II certification in highway material or equivalent state or industry certification;

(2) Certification by a regional certification program (such as Western Alliance for Quality Transportation Construction (WAQTC), Northeast Transportation Technician Certification Program (NETTCP), Southeast Task Force for Technician Training and Qualification (STFTTQ), or Multi Regional Training and Certification (M-TRAC)); or

(3) At least one year employment by an AASHTO accredited laboratory performing equivalent sampling and testing.

Add the following paragraph to the end of Subsection 153.03(b):

153.03 Quality Control Plan.
(b) Quality Control Procedures.

Submit written proposals for approval of alternate AASHTO or State approved test methods. Alternate methods may be allowed based on documented equivalence to the specified method.

Delete Subsection 153.07 and replace with the following:

153.07 Records and control charts.
Maintain complete testing and inspection records by pay item number and make them accessible to the CO.

155 – SCHEDULES FOR CONSTRUCTION CONTRACTS

Delete Section 155 in its entirety.

Delete Section 155.

156 – PUBLIC TRAFFIC

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

Section 156. – PUBLIC TRAFIC

Description

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

Material

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

Temporary Traffic Control	635
Traffic Signing and Marking Material	718
Concrete Barriers and Precast Guardwalls	618
Temporary plastic fence	710.11

Construction Requirements

156.03 General. Accommodate traffic according to MUTCD, approved traffic control plan and this section. Perform work in a manner that ensures safety and convenience of the public. Unless otherwise provided for in Table 156-1, keep existing roads open to all traffic during road improvement work, and maintain them in a condition that will adequately accommodate traffic.

Submit traffic control plan at least 30 days prior to intended use. Perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a traffic control plan has been approved.

Post construction signs and traffic control devices in conformance with MUTCD. All required signs will be in place and approved prior to beginning work on project.

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

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

(a) Furnish and install traffic control devices before the start of construction operations.

(b) All detours outside of clearing limits will be approved in writing by the Contracting Officer as part of the traffic control plan.

(c) Install only those traffic control devices needed for each stage or phase.

(d) Relocate temporary traffic control devices as necessary.

(e) Remove devices that no longer apply to the existing conditions.

(f) Immediately replace any device that is lost, stolen, destroyed, or inoperative.

(g) Keep temporary traffic control devices clean.

(h) Remove all temporary traffic control devices upon contract completion or when approved.

(i) When required, use flaggers certified by the American Traffic Safety Services Association, the National Safety Council, the International Municipal Signal Association, a state agency, or other acceptable organization. Perform the work described under MUTCD Part 6. Use type III, VII, VIII, or IX retroreflective sheeting on flagger paddles. Do not use flags. Flaggers must wear high visibility safety apparel as required by MUTCD 6E.02.

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

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

Table 156-1
Temporary Road Closures

Road Number	From Terminus	To Terminus	Maximum Consecutive Days of Closure	Minimum Consecutive Days Open
15-2-25.1	**Beginning of Project Boundary**	**End of Project Boundary**	**Entirety of the Contract**	**N/A**

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

Measurement and Payment

156.07 Do not measure Public Traffic for payment. Payment for contract work is provided indirectly. See Subsection 109.05.

157 – SOIL EROSION AND SEDIMENT CONTROL

Delete Subsection 157.03:

Delete Subsection 157.03.

Delete Subsection 157.04 and replace with the following:

157.04 General.
Thirty (30) days prior to the start of construction, submit a written plan according to subsection 104.03 with all necessary permits that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Do not begin work until the necessary controls for that particular phase of work have been implemented. Do not modify the type, size, or location of any control without approval.

When erosion control measures are not functioning as intended, take corrective action to eliminate or minimize pollutants in storm water discharges from the project.

157.18 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
15713	Soil Erosion and Pollution Control	Lump Sum
15761	Dewatering Structure	Each

170 – DEVELOP WATER SUPPLY AND WATERING

Description

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

Materials

170.02 Conform to the following subsection.

Water	725.01.

Construction Requirements

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

170.04 Equipment.

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

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

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

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

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

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

170.05 Application. Apply water uniformly without ponding or washing.

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

Measurement and Payment

170.07 See Subsection 109.05.
Do not measure develop water supply and watering for payment.

171 – WEED AND DISEASE PREVENTION

Description

171.01 This work consists of washing and treating construction equipment to remove seeds, plants, and plant fragments from the equipment before the equipment is used on BLM lands.

Material

171.02 Conform to the following Subsection:

Water	725.01

Construction Requirements

171.03 General . Notify the CO in writing at least 15 days before moving any construction equipment onto BLM lands. Construction equipment does not include cars, pickup trucks, and other vehicles that regularly travel between the construction site and areas outside of BLM lands.
Perform all work at a location designated on the plans or other locations approved in writing. Provide the CO with an opportunity to monitor the washing and inspection.

171.04 Equipment. Use a high pressure washing system.

For work on BLM lands, use a washing system that traps all wash water and either stores it for removal from BLM lands or recycles the water for continued use. If the equipment recycles the water, provide adequate filters for seed removal. Dispose of the filter material and removed seeds in an approved manner. Do not mix soaps, detergents, or other chemicals with the wash water.
For work at a commercial washing facility, use an approved facility.

171.05 Washing. Wash the sides, tops, and undercarriages of all construction equipment. Remove all seeds, plants, plant fragments, dirt, and debris from the construction equipment.

171.06 Inspection. Inspect the washed construction equipment, including the undercarriage, to ensure that the washing removed the dirt, debris, and seeds from the construction equipment. Rewash the construction equipment as necessary or as directed.

171.07 Acceptance. Weed prevention will be evaluated under Subsection 106.02.

Measurement

171.07 Do not measure weed prevention for payment.

Payment

171.09 Include all costs associated with the Section 171-Weed Prevention in the unit price for Section 151-Mobilization.

Section 201. – CLEARING AND GRUBBING

201.09 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
20158	Clearing and Grubbing	Lump Sum

203 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

203.08 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
20301	Removal of Existing Culvert, Disposal Method A	Lump Sum

204 – EXCAVATION AND EMBANKMENT

Delete Section 204 in its entirety and replace with the following.

Section 204. — EXCAVATION AND EMBANKMENT

Description

204.01 This work consists of excavating material and constructing embankments. This work also 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. Material excavated from within the right-of-way or easement areas, except subexcavation covered in Subsection 204.02(a)(2) 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 ground-line in embankment sections. Subexcavation excludes the work required by Subsection 204.05 or 204.06.

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

Topping	704.05
Unclassified borrow	704.06
Water	725.01(c)

Construction Requirements

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

Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation and embankment. Maintain drainage during pioneering operations.

204.05 Conserved Topsoil. When designated, conserve topsoil from roadway excavation and embankment foundation areas. Stockpile conserved topsoil in low windrows immediately beyond the rounding limits of cut and embankment slopes or in other approved locations. Separate conserved topsoil from other excavated material. When designated, place conserved topsoil on completed slopes according to Section 624.

204.06 Roadway Excavation. Excavate as follows:

(a) Rock cuts. Blast rock according to Section 205. Excavate rock cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Backfill to subgrade with topping or other suitable material. Compact the material according to Subsection 204.11.

(b) Earth cuts. Scarify earth cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(c) Pioneer Roads. 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.

(d) Drainage Feature. Drainage feature includes construction of all ditches, minor channel changes, drainage dips, catch basins, surface water deflectors, and other minor drainage structures. Compact the material according to Subsection 204.11. Excavate on a uniform grade between control points.

Do not disturb material and vegetation outside the construction limits. Retrieve material deposited outside the construction limits. Dispose of unsuitable or excess excavation material according to Subsection 204.14. Replace shortage of suitable material caused by premature disposal of roadway excavation.

Shape to drain and compact the work area to a uniform cross-section at the end of each day's operations.

204.07 Subexcavation. Excavate material to the required limits. Dispose of unsuitable material according to Subsection 204.14. Take cross-sections according to Section 152. Backfill subexcavated area with suitable material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness and compact according to Subsection 204.11. Prevent unsuitable material from mixing with suitable backfill material.

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

Obtain borrow source approval according to Subsection 105.02. Develop and restore borrow sources according to Subsections 105.03 and 105.06. 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 over natural ground. Remove topsoil and break up the ground surface to a minimum depth of 6 inches (150 millimeters) 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 (150 millimeters). Scarify or pulverize asphalt and concrete roads to 6 inches (150 millimeters) below the pavement. Reduce particles to a maximum size of 6 inches (150 millimeters) 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 steps in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Step the slope as the embankment is placed and compacted in layers. Begin each step at the intersection of the original ground and the vertical cut of the previous step.

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 (2 meters) 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 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 with a tamping foot roller, by walking with a dozer, or by over-building the fill and then removing excess material to the final slope line. For slopes 1V:1¾H or steeper, compact the slopes as embankment construction progresses.

(b) Embankment within the roadway prism. Place embankment material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch (300-millimeter) layers by reducing them in size or placing them individually as required 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 (300-millimeter) layers may be placed in layers up to 24 inches (600 millimeters) thick. Incorporate oversize boulders or rock fragments into the 24-inch (600-millimeter) layer by reducing them in size or placing individual rock fragments and boulders greater than 24 inches (600 millimeters) in diameter as follows:

(1) Reduce rock to less than 48 inches (1200 millimeters) 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 above. Fill voids between rocks; and

(4) Compact each layer according to Subsection 204.11(a) before placing the next layer.

(c) Embankment outside of roadway prism. When placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches (600 millimeters) 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) Placement Method 1. Use AASHTO T 27 to determine the quantity of material retained on a No. 4 (4.75-millimeter) sieve. Compact as follows:

(1) More than 80 percent retained on a No. 4 (4.75-millimeter) sieve. 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 (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) 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 (180 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute;

(b) Eight roller passes of a 20-ton (20-metric ton) compression-type roller; or

(c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches (300 millimeters) as follows:

- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(1)(a), by four passes; or
- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(1)(b) and (c), by eight passes.

(2) 50 to 80 percent retained on a No. 4 (4.75-millimeter) sieve. Classify the material according to AASHTO M 145. 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 AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 (4.75-millimeter) sieve. Multiply this number by the percentage of material passing a No. 4 (4.75-millimeter) sieve, and add 2 percent to determine the optimum moisture content of the material.

Use nonvibratory rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet(1 meter) per second. Compact each layer of material full width according to Subsection 204.11(a)(1).

(3) Less than 50 percent retained on a No. 4 (4.75-millimeter) sieve. 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 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) Placement Method 2. Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate roller 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. Use compression-type rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) per second. Ensure rollers meet the following requirements:

(1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch (4.5 kilogram/millimeter) of width of the compression roll or rolls.

(2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration, specifically designed to compact the material on which it is used.

(3) Pneumatic-tired rollers with smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least 80 psi (550 Kilopascals).

(4) Sheepsfoot, tamping, or grid rollers capable of exerting a force of 250 pounds per inch (4.5 kilogram/millimeter) of width of roller drum.

(c) Placement Method 3. Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate hauling and spreading equipment uniformly over the full width of each layer until there is no visible evidence of further consolidation. Make at least three complete passes.

(d) Placement Method 4. Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate hauling and spreading equipment uniformly over the full width of each layer.

(e) Placement Method 5. Adjust the moisture content of the material to a moisture content suitable for compaction. Compact the complete surface with a bucket of an excavator larger than 39,000 pounds (18 metric ton) Gross Vehicle Weight using a minimum of three blows. Overlap compaction by ½ width of bucket.

(f) Placement Method 6. Adjust the moisture content of the material to a moisture content suitable for compaction. Compact using an approved mechanical tamper for a minimum of three complete passes.

When compacting with rollers or hauling and spreading equipment is not practical, use approved mechanical tampers for a minimum of three complete passes.

204.12 Drainage Excavation. Excavate material to ground lines shown on plans. Excavate all material outside and around the metal culvert.

Excavate to the bottom surface of riprap and stream reconstruction layers and to the vertical and horizontal dimensions shown on the plans. Prepare surfaces for riprap placement in accordance with Section 209.

Utilize excavated material in accordance with Subsection 204.10. Conserve channel material that may be appropriate for re-use in stream simulation construction as directed by the CO. Dispose of excess material in accordance with Subsection 204.14.

204.13 Sloping, Shaping, and Finishing. Complete subgrade, slopes, drainage features, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish to the designated tolerance class as defined in Table 204-2 as follows:

(a) Sloping. Leave earth slopes with uniform roughened surfaces, except as described in Subsection 204.13(b), with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale 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 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, construct steps on slopes of 1⅓V:1H to 1V:2H. Construct the steps approximately 18 inches (450 millimeters) high. Blend the steps into natural ground at the end of the cut. If the slope contains non-rippable 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. Ensure that the subgrade is visibly moist during shaping and dressing; smooth and uniform, and shaped to conform to the typical sections. Remove material larger than 6 inches (150 millimeters) from the top 6 inches (150 millimeters) of the roadbed. Remove unsuitable material from the roadbed, and replace it with suitable material. Scarify to 6 inches (150 millimeters) below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material.

Maintain proper ditch drainage.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or according to Subsection 203.05(a)

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, testing, and acceptance 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.

Subexcavation will be evaluated under Subsections 106.02 and 106.04.

Measurement

204.16 Measure the Section 204 pay 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 listed in the bid schedule;

(d) Ditches, except furrow ditches measured under a separate pay item;

(e) Conserved topsoil;

(f) Borrow material used in the work when a pay item for borrow is not listed in the bid schedule;

(g) Loose scattered rocks removed and placed as required within the roadway;

(h) Conserved material taken from pre-existing stockpiles and used in Section 204 work, except topsoil measured under 624; 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;

(l) Material excavated outside the established slope limits; and

(m) Road pioneering for the convenience of the Contractor.

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

(a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not listed 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, and topping. When measuring by the cubic yard (cubic meter) measure in its original position. If borrow excavation is measured by the cubic yard (cubic meter) 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 until suitable roadway excavation is depleted.

(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. If a pay item for slope rounding is included in the bid schedule measure rounding cut slopes horizontally along the centerline of the roadway. If a pay item is not included for slope rounding is not included in the bid schedule payment will be considered indirect to roadway excavation.

(e) Waste. Measure waste by the cubic yard (cubic meter) 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 (cubic meter) in the hauling vehicle.

(g) Subexcavation. Measure subexcavation by the cubic yard (cubic meter) in its original position.

(h) Drainage features. Measurement includes all excavation, embankment, shaping, and grading necessary for a completed drainage feature.

(i) Drainage excavation. Do not include the following in drainage excavation:

1) Material excavated to prepare foundations for construction.

2) Roadway prism excavation.

PAYMENT

204.17

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
20407	Roadway Excavation	Cubic Yard
20417	Embankment Construction, compaction placement method 2	Lump Sum
20426	Drainage Excavation, Type Channel Bank Material	Lump Sum

208 – STRUCTURE EXCAVATION AND BACKFILL FOR SELECTED MAJOR STRUCTURES

Add the following to Subsection 208.07:

208.07 Dewatering.
Construct diversions according to Subsection 157.10 Diversions.

Delete Subsection 208.10 and replace with the following:

208.10 Compacting.
Compaction Method 1. Adjust the moisture content of the material to a moisture content suitable for compaction. Operate roller 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. Use compression-type rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) per second. Ensure rollers meet the following requirements:

(1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch (4.5 kilogram/millimeter) of width of the compression roll or rolls.

(2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration, specifically designed to compact the material on which it is used.

(3) Pneumatic-tired rollers with smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least 80 psi (550 Kilopascals).

(4) Sheepsfoot, tamping, or grid rollers capable of exerting a force of 250 pounds per inch (4.5 kilogram/millimeter) of width of roller drum.

208.13 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
20858	Structure Excavation	Cubic Yard
20860	Structural Backfill	Ton

251 - RIPRAP

251.03 General.

Add the following:

Place riprap under or adjacent to structures before placing prefabricated superstructure units or constructing superstructure falsework unless otherwise approved by the CO.

251.08 Measurement.

Add the following:

Payment for excavation and embankment required for placement of riprap is indirectly included in the pay item for riprap.

251.09 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
25102	Placed Riprap, Class 4	Ton

Section 302. – MINOR CRUSHED AGGREGATE

Add the following to Subsection 302.04 and 302.04(a)

302.04 Placing Crushed Aggregate.

Written approval of the surface is required before placing aggregate.

(a) Roadway aggregate.
For pit run or grid-rolled material, furnish material smaller than the maximum size, no gradation will be required otherwise. After processing on the road, remove all oversize material from the road and dispose as directed by the CO

Replace the first paragraph of subsection 302.05(a) with the following:

302.05 Compacting and Finishing Crushed Aggregate

(a) Roadway aggregate. Unless otherwise specified compact according to method 2. Finish surface according to Subsection 301.06.

302.08 Payment

Add the following.

Payment will be made under:

	Pay Item	**Pay Unit**
30207	Aggregate surface course, method 1	Ton
30211	Pit run maximum size 6”, method 1	Ton

552 – STRUCTURAL CONCRETE

552.01 Description

Delete the first paragraph and replace with the following:

This work consists of furnishing, placing, finishing, and curing concrete in bridges, culverts, and other structures; fabricating precast concrete members by furnishing and placing reinforcing steel, and placing and finishing concrete; manufacturing, materials testing, transport, storage, and installation of all precast concrete portions except piling; performing all necessary grouting, welding, or other connections; and furnishing of precast concrete members complete and in place, including all concrete reinforcing steel and incidentals connected there with.

552.02 Add the following Sections and Subsections:

Anchor bolts (Hook bolts)	709.01(e)
Dowels	709.01(f)
Falsework and Forms	562
Reinforcing Steel	554
Structural Steel	717.01
Mortar cement	701.02(b)

552.03 Composition (Concrete Mix Design).

Add the following footnote to Table 552-1:

> [(4)] Use Class P (AE) concrete in the entire depth of the top flange of all multi-beam bridge girders. In lieu of this, Class P (AE) concrete may be used for fabrication of the entire girder and throughout the entire depth of prestressed slabs. In all cases, furnish concrete meeting the 28 day specified minimum concrete strength requirements for the prestressed members as shown on the plans, unless otherwise specified.

Delete the first and second paragraph after Table 552-3 and replace with the following:

Submit written concrete mix designs on FHWA Form 1608, 552 *Structural Concrete Mix Design Submittal*, or other format that is professional in appearance and provides all of the required information in subsections (a) through (z) of this section, 552.03. Allow at least 30 calendar days for approval before production.

Add the following under the list of items to be included in the mix design submittal:

(z) Evaluation of potential aggregate reactivity

552.08 Delivery.

(a) Truck mixer/agitator.

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

Do not exceed 130 total revolutions at mixing speed, including both initial mixing and remixing. Do not exceed 300 total revolutions, including both mixing and agitating speed.

Replace table 552-4 and its footnote with the following updated table and footnotes:

Table 552-4
Concrete Remixing and Discharge Time Limits

Cement Type (1)	Admixtures	Remixing Time Limit (hour)	Discharge Time Limit (hour)
Type I, IA, II, IIA, V, or approved blended hydraulic cement	None	0.75	1.00
Type I, IA, II, IIA, V, or approved blended hydraulic cement	ASTM C494, Type B, D, or G(2)	1.25	1.50
Type I, IA, II, IIA, V, or approved blended hydraulic cement	Hydration stabilizer	3.00	Approved design discharge time limit, 3.50 maximum
Type III	None	0.50	0.75
Type III	ASTM C494, Type B, D, or G(2)	1.00	1.25

(1) AASHTO M 85 or AASHTO M 240 as applicable.

(2) ASTM C494 defines Type B as a retarding admixture, Type D as a Water-reducing and retarding admixture, and Type G as a Water-reducing, high range, and retarding admixture.

552.09 Quality Control of Mix.

Add the following after the first paragraph:

At least 2 weeks prior to the start of concrete placement operations, arrange a pre-concrete placement conference. Coordinate attendance with the CO and any applicable subcontractors. Be prepared to discuss and/or submit the following:

(1) Proposed concrete placement schedule.
(2) Review approved concrete mix design and determination of batch weights.
(3) Discuss Section 153, Contractor Quality Control, minimum frequency schedule for process control sampling and testing (to be performed by the Contractor).
(4) Discuss batching, mixing, placing, and curing requirements.

(5) Discuss Subsections 106.03, Certification, and 106.05, Statistical Evaluation of Material for Acceptance.

552.18 Loads on New Concrete Structures.

Add the following paragraph:

Do not allow public traffic on the bridge until approaches, curbs, and bridge rail are completed and in-place. Erect barricades at each end of bridge spans when road approaches allow vehicles to drive directly onto the structure.

552.20 Acceptance.

See Table 552-9 for sampling, testing, and acceptance requirements and the quality characteristic category.
Reinforcing steel, anchor devices, elastomeric bearings, and material for concrete and grout will be evaluated under Subsection 106.03. Furnish production certifications for hydraulic cement, reinforcing steel, and any other cementitious materials.
Cast in place concrete mixture's slump, air content, density, and temperature will be evaluated under Subsections 106.02 and 106.04.
Concrete compressive strength will be evaluated under Subsection 106.05. The lower specification limit is the minimum required compressive strength at 28 days (f'_c) specified in the contract. Remove and replace concrete represented by cylinders having a compressive strength less than 90 percent of the minimum 28-day strength (f'_c).
Concrete for precast concrete members will be evaluated under Subsections 106.02, 106.03, and 106.04.
Construction of all precast concrete members and concrete structures (including batching, placing, finishing, and curing concrete) will be evaluated under Subsections 106.02 and 106.04.
Reinforcing steel will be evaluated under Section 554.
Falsework and forms will be evaluated under Section 562.

552.21 Measurement.

Measure the Section 552 pay items listed in the bid schedule according to Subsection 109.02 and the following as applicable.
When measuring structural concrete by the cubic yard (cubic meter), measure in the structure.
Do not measure reinforcing steel, concrete, anchorages, plates, nuts, and other material contained within or attached to the unit for precast concrete structural members.

552.22 Payment.

Add the following.

Payment will be made under:

	Pay Item	**Pay Unit**
55201	Structural Concrete, Class A(AE), Type I	Cubic Yard

554 – REINFORCING STEEL

Construction Requirements

554.03 Order Lists.

Delete the first paragraph and replace with the following:

Do not submit order lists or bending diagrams for approval.

554.08 Placing & Fastening.

Delete the first sentence and replace with the following:

Place, fasten, and support the bars according to the CRSI *Manual of Standard Practice*. Use precast concrete blocks or metal supports, but only use precast mortar blocks in areas permanently hidden from view in the completed structure.

Measurement

554.11 Method.

Add the following to the end of the second paragraph:

Do not measure or include reinforcing steel fabricated into the prestressed member.

554.12 Payment.

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
55401	Reinforcing steel	Pound

603 – STRUCTURAL PLATE STRUCTURES

Delete the first paragraph and replace with the following:

603.03 General.

Excavate and backfill according to Section 208. Submit design drawings and details with supporting calculations stamped by a registered professional engineer in the state of Oregon according to subsection 104.03.

Delete Subsection 603.04 and replace with the following:

603.04 Erecting. Provide steel, aluminum alloy, asphalt coated steel, or asphalt coated aluminum alloy structural plate structure

Submit a copy of the manufacturer's assembly instructions before assembly. Show the position of each plate and assembly order.

Assemble the structural plates according to the manufacturer's recommendations. Prevent damage to the structural plate and its coating. Clear sand, gravel, and other foreign material from the corrugations within lapped sections of the plates. Ensure plates have a proper fit-up.

Where aluminum alloys come in contact with other types of metal, coat the contacting surfaces according to Subsection 602.05.

Torque bolts according to the manufacturer's recommendations.

For structures having a span greater than or equal to 20 feet:

(a) Tighten the longitudinal seams when the plates are assembled unless the plates are held in shape by cables, struts, or backfill. Properly align plates circumferentially to avoid permanent distortion from the design shape. Before backfilling, do not exceed 2 percent variation from the design shape;

(b) Do not distort the shape of the structure by operating equipment over or near it;

(c) Provide survey control on the structure to check structure movement;

(d) Check and control the deflection movements of the structure during the backfilling operation. Do not exceed the manufacturer's recommended limits; and

603.05 Acceptance.

Delete the third paragraph and replace with the following:

Excavation and backfill will be evaluated under section 208.

603.07 Payment.
Add the following.

Payment will be made under:

	Pay Item	Pay Unit
60304	18”-0” span, 5’-9” rise, structural plate arch pipe, 0.111 inch thickness	Foot

625 – TURF ESTABLISHMENT

625.03 General.

Delete the first subsection and add the following:

Apply turf establishment to finished slopes and ditches prior to completion of the project. Do not seed during windy weather or when the ground is excessively wet, frozen, snow covered, extremely dry, cloddy, hard pan, or is otherwise untillable.

625.04 Preparing Seedbed.

Delete the first subsection and add the following:

Ensure that the surface soil is in a roughened condition favorable for germination and growth.

625.05 Watering.
Delete the entire subsection

625.06 Fertilizing.
Delete the entire subsection

625.07 Seeding. (a) Dry method.

Remove the last sentence "Lightly compact the seedbed within 24 hours after seeding."

625.08 Mulching. (a) Dry method.
Delete the paragraph and replace with the following:
Apply certified weed free straw mulch as shown on the plans.

625.12 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
62552	Seeding and Mulching, Dry Method	Lump Sum

Section 635. – TEMPORARY TRAFFIC CONTROL

635.25 Payment

Add the following.

Payment will be made under:

	Pay Item	Pay Unit
63501	Temporary Traffic Control	Lump Sum

648 – STREAM SIMULATION

Description

648.01 This work consists of placing rock and fill to simulate a natural streambed, profile and cross section though road stream crossings. The placement of channel rock for: fish rest stop, rock bands, rock weirs, stream bank rocks, and other in stream rock structures, is included within this specification.

Material

648.02 Conform to the following Subsections.

Backfill Material	704.03
Stream Bed Simulation Material	705.08
Channel Rock	705.08

Construction Requirements

648.03 General. Place streambed simulation material on a prepared surface to form a well-graded, low permeability mass, similar in appearance and texture to the natural streambed. Do not drive metal track or rubber tired equipment directly on metal or concrete structure surfaces.

648.04 Placed Streambed Simulation Material and Channel Rock.

(a) Method A, Machine Placed. Place stream simulation material in one or more layers with a layer depth not exceeding **12"** depth. Place stream simulation material by methods that do not cause segregation or damage to the prepared surface. Place or rearrange individual rocks by mechanical methods to obtain a compact low permeability mass matching streambed simulation details. Fill voids before placing the next lift and compact each layer until there is no visible evidence of further consolidation. Place channel rock, rock bands, rock weirs, stream bank rock, and other in stream rock structures as designated.

(b) Method B, End Dumped. End dump stream simulation rock in one or more layers with a layer depth not exceeding **12"** Distribute larger rocks throughout the mass of streambed simulation material. Obtain a uniformly dense, compact, low permeability bed with a surface matching stream simulation bed details. Fill voids before placing the next lift and compact each layer until there is no visible evidence of further consolidation. Place channel rock, rock bands, rock weirs, stream bank rock, and other in stream rock structures as designated.

(c) Method C, Hand Placed. Place stream simulation rock using hand labor. Material may be hand carried, or carried in wheelbarrows and end dumped to obtain its full thickness. Compact each layer using tamping rods or other hand operated mechanical equipment to obtain a uniformly dense, compact, low permeability bed with a surface matching stream simulation bed details. Fill voids before placing the next lift, and compact each layer until there is no visible evidence of further consolidation. Place channel rock, rock bands, rock weirs, stream bank rock, and other in stream rock structures as designated.

648.05 Streambed Surface. Fill all voids in the streambed surface left during placement of channel rock and streambed simulation material with backfill material. Use water pressure, metal tamping rods, and similar hand operated equipment to force material into all surface voids.

648.06 Acceptance. Placing streambed simulation material will be evaluated under Subsections 106.02 and 106.04.

Measurement

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

Payment

648.08

Payment will be made under:

	Pay Item	**Pay Unit**
64801	Placed Streambed Simulation Rock, Bed class 4, Method A	Ton
64805A	Placed Channel Rock, Class CR-1, Method A	Each
64805B	Placed Channel Rock, Class CR-2, Method A	Each

705 – ROCK

Add Subsection 705.08:

705.08 Streambed Simulation Rock.

(a) Simulation Material. Furnish a mixture of soil, gravel, cobble, and boulders to simulate a natural streambed. The cobbles and boulders should be hard, durable rock that conforms to test values in 705.02.

Table 705-4
Gradation requirements for Streambed Simulation Material (inches or sieve size)

Bed Class	100% passing	84% passing	50% passing	16% passing	10% passing
2	5	2	3/4	1/4	No. 10
4	10	4	1 3/4	1/2	No. 10
6	14	6	2 1/2	3/4	No. 10
8	22	8	3	1	No. 10
10	24	10	4	1	No. 10
12	30	12	5	1 1/2	No. 10
14	36	14	6	1 3/4	No. 10
16	42	16	7	2	No. 10
20	48	20	8	3	No. 10
24	60	24	10	3	No. 10
36	72	36	14	4	No. 10
48	96	48	18	6	No. 10

(b) Streambed Channel Rock. Furnish hard durable rock that is resistant to weathering and water action, free of organic or other unsuitable material, similar in color to those in the area, and at least as angular as that found in the natural stream channel. Do not use shale, rock with shale seams, or other fissile or fissured rock that may break into smaller pieces in the process of handling and placing. Conform to test values in 705.02.

Table 705-5
Gradation Requirement for Channel Rock

Size	Mass (Pounds)	Approximate Cubic Dimension (inches)
0	12 - 90	6 - 12
1	90 - 300	12 - 18
2	300 - 700	18 - 24
3	700 - 1350	24 - 30
4	1350 - 2400	30 - 36
5	2400 - 3700	36 - 42

6	3700 - 5500	42 - 48
7	5500 - 7900	48 - 54
8	7900 - 10800	54 - 60
Note: Mass / Pounds of channel is based on a sphere of the approximate cubic dimensions composed of granite. Mass will vary with rock type. Inspection should be performed by using the cube root of the A axis * B axis * C axis of each piece.		

717 – STRUCTURAL METAL

717.01 Structural Steel

Delete Subsection 717.01(e) and replace with the following:

(e) Provide bolts conforming to ASTM F3125 or ASTM F3148 as specified. If not provided as an assembly (ASTM F3125 Grades F1852 and F2280, or ASTM F3148), provide nuts conforming to ASTM A563, Grade DH or DH3, with the S1 *Supplementary Lubricant Requirement*, and provide washers conforming to ASTM F436. Use Type 3 bolts, nuts, and washers to connect uncoated weathering steel components. Use Type 1 or 3 in other scenarios.

Provide fastener assembly coatings conforming to ASTM F3125 Annex A1 or ASTM F3148 Table 1. If hot-dip or mechanically galvanized coatings are used, use a lubricated nut dyed blue.

Provide fastener assemblies (bolt, nut, and washers) that have been rotation-capacity tested by the manufacturer and fastener components that have been assigned a rotation-capacity lot number.