

ADDENDUM NO. 2 – JOB 110812

ARKANSAS DEPARTMENT OF TRANSPORTATION

PROGRAM MANAGEMENT DIVISION

LITTLE ROCK, ARKANSAS

October 23, 2026

TO: Eligible Bidders – Job 110812

SUBJECT: Plan and Proposal Documents Changes

Transmitted herewith find the following listed revisions for Job 110812:

1. Added Standard Drawing PU-1: Sheet 2
2. Revised details for backfill of west approach backwall per U.S. Army Corp of Engineers: Sheets 2, 3, 11, 23, 25, 44, and 45
3. Revised item number for Epoxy Coated Reinforcing Steel (Grade 60): Sheet 24
4. Revised Keyed Notes 1-4 to match pay items in the Summary of Quantities: Sheet 34
5. Removed note for sign ML 49-W-AR-WB at Log Mile 0.512. The sign is to be removed by the Contractor, but will be replaced by state forces: Sheet 28
6. Galvanizing standard references were corrected: Sheet 61 and 93
7. Revised details for new stiffener in Repair Type C: Floor Beam Web and Repair Type D: Floor Beam Stiffener: Sheets 74 and 75

Additionally, various pay items, special provisions, and supplemental specifications have been added, removed, or revised as listed on Page 2 of this addendum. Plan Sheets 2, 3, 11, 23-25, 28, 31, 34, 44-45, 61, 74-75, 93, the Supplemental Specifications and Special Provisions Listing, the Proposal Schedule of Items Pages 1-6, and the EBS file have been revised to reflect these changes. You should substitute the revised sheets into your plan set and proposal documents and consider these revisions when submitting your bid.

ACKNOWLEDGEMENT OF THIS ADDENDUM SHALL BE MADE BY SIGNING BELOW AND SUBMITTING THIS SIGNED FORM TO THE PROGRAM MANAGEMENT DIVISION BY EMAIL AT pmd@ardot.gov OR BY FAX AT (501)569-2623.

Sincerely,



FOR

Daniel Siskowski
Division Engineer
Program Management

Name

Company

EMAILED ADDENDUM

Line No.	Item Description	Previous Quantity	Revised Quantity	Unit
0008	Unclassified Excavation	0	25	Cu. Yd.
0009	Compacted Embankment	0	16	Cu. Yd.
0040	Furnish and Install Variable Message Sign	1	4	Each
0062	E-Net Cable (Exterior CAT 6)	0	1,340	L.F.
---	Stone Backfill	50	0	Tons
---	Geotextile Fabric (Type 9)	33	0	Sq. Yd.
---	E-Net Cable (Exterior CAT 5E)	1,340	0	L.F.

Added Special Provisions

- Compacted Embankment

Removed Special Provisions

- Stone Backfill
- Longitudinal Tining
- Class C Fly Ash in Portland Cement Concrete Pavement and Class S(AE) Concrete
- Concrete for Structures

Revised Special Provisions

- ITS Equipment Cabinets
- Road Weather Information System (RWIS)
- Networking Equipment
- Radio Interconnect System
- Lightweight Aggregate Concrete (AE)
- Maintenance of Traffic
- Portable Camera Trailers
- Shoring
- Requirements of U.S. Coast Guard Permit
- Prosecution and Progress with Bid Schedule
- Prime Contractor Performance Evaluation

Revised Supplemental Specifications

- SS 802-5: Concrete for Structures

Arkansas Department of Transportation
Supplemental Specifications and Special Provisions Listing
State Job Number 110812

The following supplemental specifications and special provisions for this project supplement the standard specifications, edition of 2014. In case of conflict, the supplemental specifications and special provisions shall govern.

ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB 110812
JOB SP	CARGO PREFERENCE ACT REQUIREMENTS
JOB SP	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB SP	BUY AMERICA - CONSTRUCTION MATERIALS
JOB SP	VENDOR REGISTRATION REQUIREMENT
JOB SP	DOCUMENTATION OF PAYMENTS MADE – PROMPT PAYMENT (SIGNET)
JOB SP	BIDDING REQUIREMENTS AND CONDITIONS
JOB SP	MANDATORY ELECTRONIC CONTRACT
JOB SP	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB SP	ASSESSMENT OF WORKING DAYS - MAINTENANCE OF TRAFFIC
JOB SP	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB SP	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB SP	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
JOB SP	NESTING SITES OF MIGRATORY BIRDS
JOB SP	COMPACTED EMBANKMENT
JOB SP	TRENCHING AND SHOULDER PREPARATION FOR TEMPORARY WIDENING
JOB SP	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB SP	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB SP	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB SP	PRICE ADJUSTMENT FOR FUEL
JOB SP	ASPHALT MIXTURES WITH PG 76-22 BINDER
JOB SP	WARM MIX ASPHALT
JOB SP	COLD MILLING - MILL & INLAY
JOB SP	BROADBAND INTERNET SERVICE & FLOOD PLAIN REQUIREMENTS FOR FIELD OFFICE
JOB SP	MAINTENANCE OF TRAFFIC
JOB SP	MOTORIST ASSISTANCE PATROL
JOB SP	TRAFFIC CONTROL SUPERVISOR

Arkansas Department of Transportation
Supplemental Specifications and Special Provisions Listing
State Job Number 110812

The following supplemental specifications and special provisions for this project supplement the standard specifications, edition of 2014. In case of conflict, the supplemental specifications and special provisions shall govern.

JOB SP	WRECKER SERVICE
JOB SP	CONSTRUCTION PROJECT INFORMATION SIGN
JOB SP	PORTABLE CAMERA TRAILERS
JOB SP	VARIABLE MESSAGE SIGN SYSTEM
JOB SP	BARRIER WALL DELINEATOR
JOB SP	PRECAST CONCRETE BARRIER (TYPE SPECIAL)
JOB SP	ITS ELECTRICAL JUNCTION BOX, METALLIC
JOB SP	ITS EQUIPMENT CABINETS
JOB SP	ROAD WEATHER INFORMATION SYSTEM (RWIS)
JOB SP	PORTABLE TRAFFIC SIGNAL SYSTEM WITH TRAFFIC TIMER UNITS - COUNTDOWN
JOB SP	NETWORKING EQUIPMENT
JOB SP	RADIO INTERCONNECT SYSTEM
JOB SP	PAN-TILT-ZOOM CAMERA SYSTEM
JOB SP	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB SP	BRIDGE MOUNTED GALVANIZED STEEL CONDUIT SYSTEM
JOB SP	BRIDGE POST MOUNTED SIGN SUPPORT
JOB SP	LOCAL WORK ZONE LAW ENFORCEMENT
JOB SP	BRIDGE JACKING AND TEMPORARY FALSEWORK FOR BEARING REPLACEMENTS
JOB SP	LIGHTWEIGHT AGGREGATE CONCRETE (AE)
JOB SP	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB SP	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL
JOB SP	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB SP	LOW-CARBON CHROMIUM REINFORCING STEEL
JOB SP	BRIDGE STRUCTURAL STEEL REPAIRS
JOB SP	STEEL PLATE CONNECTION PREPARATION
JOB SP	CRACK ARREST HOLES FOR BRIDGE STRUCTURAL STEEL
JOB SP	NAVIGATION LIGHTING SYSTEM
JOB SP	AIRWAY OBSTRUCTION LIGHTING SYSTEM
JOB SP	PREFORMED SILICONE JOINT SEAL
JOB SP	CONTRACTOR CERTIFICATION
JOB SP	CONTAINMENT SYSTEM
JOB SP	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB SP	POLYMER OVERLAY
JOB SP	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS
JOB SP	SHORING
JOB SP	STRUCTURAL STEEL SHORING
JOB SP	REQUIREMENTS OF U.S. COAST GUARD PERMIT

Arkansas Department of Transportation
Supplemental Specifications and Special Provisions Listing
State Job Number 110812

The following supplemental specifications and special provisions for this project supplement the standard specifications, edition of 2014. In case of conflict, the supplemental specifications and special provisions shall govern.

JOB SP	COORDINATION OF WORK
JOB SP	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB SP	WATER POLLUTION CONTROL
JOB SP	PRIME CONTRACTOR PERFORMANCE EVALUATION
JOB SP	SEQUENCE OF CONSTRUCTION - ALTERNATE CONCEPTUAL PROPOSAL (ACP)
JOB SP	INSPECTOR'S PERSONAL PROTECTION CLOTHING
JOB SP	SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB SP	PARTNERING REQUIREMENTS
JOB SP	VALUE ENGINEERING
JOB SP	UTILITY ADJUSTMENTS
SP 108-1	LIQUIDATED DAMAGES
SS 100-3	CONTRACTOR'S LICENSE
SS 100-4	DEPARTMENT NAME CHANGE
SS 102-2	ISSUANCE OF PROPOSALS
SS 102-3	PREQUALIFICATION OF BIDDERS
SS 103-2	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
SS 105-4	MAINTENANCE DURING CONSTRUCTION
SS 107-2	RESTRAINING CONDITIONS
SS 303-1	AGGREGATE BASE COURSE
SS 306-1	QUALITY CONTROL AND ACCEPTANCE
SS 307-2	CEMENT TREATED BASE COURSE
SS 308-2	CEMENT STABILIZED CRUSHED STONE BASE COURSE
SS 400-1	TACK COATS
SS 400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
SS 400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
SS 400-6	LIQUID ANTI-STRIP ADDITIVE
SS 400-7	TRACKLESS TACK
SS 404-3	DESIGN OF ASPHALT MIXTURES
SS 409-2	ASPHALT LABORATORY FACILITY
SS 410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
SS 410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
SS 410-4	EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
SS 416-1	RECYCLED ASPHALT PAVEMENT
SS 501-3	PORTLAND CEMENT CONCRETE PAVEMENT
SS 502-1	WELDED WIRE REINFORCEMENT
SS 600-2	INCIDENTAL CONSTRUCTION

Arkansas Department of Transportation
Supplemental Specifications and Special Provisions Listing
State Job Number 110812

The following supplemental specifications and special provisions for this project supplement the standard specifications, edition of 2014. In case of conflict, the supplemental specifications and special provisions shall govern.

SS 603-1	LANE CLOSURE NOTIFICATION
SS 604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
SS 604-3	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
SS 617-1	GUARDRAIL TERMINAL (TYPE 2)
SS 617-2	GUARDRAIL DELINEATORS
SS 620-1	MULCH COVER
SS 621-1	FILTER SOCKS
SS 700-2	TRAFFIC CONTROL FACILITIES
SS 723-1	GENERAL REQUIREMENTS FOR SIGNS
SS 729-1	CHANNEL POST SIGN SUPPORT
SS 730-1	BREAKAWAY SIGN SUPPORT
SS 800-1	STRUCTURES
SS 802-3	CONCRETE FOR STRUCTURES
SS 802-5	CONCRETE FOR STRUCTURES
SS 804-2	REINFORCING STEEL FOR STRUCTURES
SS 807-2	STEEL STRUCTURES
SS 808-1	INSTALLATION OF ELASTOMERIC BEARINGS
SS 808-2	ELASTOMERIC BEARINGS

ARKANSAS DEPARTMENT OF TRANSPORTATION**SPECIAL PROVISION****JOB NO. 110812****COMPACTED EMBANKMENT**

DESCRIPTION: Section 210, Excavation and Embankment, Subsection 210.02 (b) Acceptance Testing, paragraph 2 of the Standard Specification for Highway Construction, 2014 Edition is deleted and replaced with the following:

Before the any material is placed, the Contractor shall split a sample with the Engineer for verification that the proposed material meets the requirements specified within this special provision. The minimum frequency of acceptance testing by the Contractor shall be one test for density, moisture, PI, and LL per **100 cubic yards** of embankment placed. One test for density and moisture shall be performed on each lift of material placed. The location will be randomly selected by the Engineer using AHTD 465. The results of all tests shall be at or above the minimum required density and the moisture content should be near the optimum.

Subsection 210.11, Compacted Embankment is amended to add the following material requirements:

Compacted Embankment materials shall be either a soil classified CH or CL in accordance with current version of ASTM D2487. All embankment material to backfill the west abutment wall of Bridge No. 02899 shall be from one source and of the same soil classification.

Soil classified as CL shall be a soil that is an inorganic clay with low to medium plasticity meeting the following requirements:

$$\begin{aligned} \text{PI} &> 10 \\ \text{LL} &< 50 \end{aligned}$$

Soil classified as CH shall be a soil that is an inorganic clay with high plasticity meeting the following requirements:

$$\begin{aligned} \text{PI} &> 25 \\ \text{LL} &> 50 \end{aligned}$$

Subsection 210.13 Basis of Payment (c) is hereby amended to include the following:

The requirements of this special provision shall be included the contract unit price bid per cubic yard for Compacted Embankment and will be full compensation for all costs involved in fulfilling the above amended requirements.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

DESCRIPTION: The cabinet will provide a protective outdoor housing enclosure in which to install field hardware required for ITS devices. Major elements of the equipment cabinet include the cabinet housing and equipment mounting hardware, interior wiring and termination facilities, power supplies, electrical accessories and field installation. Work also includes making modifications to existing ITS cabinets in accordance with the plans, specials provisions, Notice to Bidders and contract documents.

MATERIALS:

Equipment and Materials: The Contractor shall furnish only new equipment and materials as follows:

The cabinet enclosure shall be manufactured from 0.125-inch aluminum. The cabinet and integral materials shall be as recommended by the manufacturers for outside plant use and the intended application. This requirement shall include wiring and electrical materials and configurations (including connector pinouts) that are wholly or partially related to the field device applications (CCTV, RDS, VDS, etc.).

Equipment cabinets shall be furnished, installed, and configured at locations shown in the plans. All equipment and materials shall be furnished and configured for each specific location as shown in the plans.

Electrical systems and components shall be UL-listings.

Unless otherwise specified, wire and cable shall be stranded copper conductors, 167°/194° Fahrenheit wet/dry rated insulation and sized for the maximum voltage and current in the circuit. All materials shall comply with the "Buy America – Construction Materials" Special Provision.

Components Specified as Rail-Mounted: Components specified as rail-mounted shall be compliant as follows:

DIN EN 50022 (NS35) component rails.

- 1) Component rails shall be the perforated type and of sufficient length as to protrude beyond the mounted components for fastening to cabinet panels as specified herein.
- 2) UL 1059.
- 3) UL 486E.
- 4) NEMA ISC-4.
- 5) Alternate rail configurations, if proposed, shall be submitted to the Engineer for consideration and approval.

Terminal Blocks and Component Terminal: Terminal Blocks and Component Terminals shall be nickel-plated copper, copper alloy or brass.

Terminal blocks shall have voltage and current ratings greater than the ratings of the wires that are terminated, be able to terminate wires from #8 AWG to #1/0 AWG wiring and shall be

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

assembled into housing enclosures such that all exposed surfaces are touch safe. Conductor fastening screws shall be captive. Terminal block housings shall be colored as follows:

- 1) 120 VAC line/hot: black
- 2) 120 VAC neutral: white
- 3) 24 VDC positive: red
- 4) 24 VDC negative: gray
- 5) Communications: orange
- 6) Ground: green or green/yellow

Door Locks: Door Locks shall be provided for all cabinet doors, keyed to the Department standard #2 key type lock and keyed to be operated with a traffic industry conventional #2 key made from heavy-duty blanks. Two keys shall be provided with each cabinet.

Cabinet Labels: Labels shall be provided with agency name, project number, device name and ID labels on all cabinets.

Labels shall be flat black lettering on a reflective white background. Lettering shall be a minimum of one inch (1") in height.

Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO M268 Type 1.

The agency name labels shall be "ARDOT ITS" in one continuous adhesive sheet.

The device ID labels shall include the device name as an acronym and a hyphen and shall be one continuous adhesive sheet. Device name acronyms are "CCTV-", "RDS-", "VDS-" or "DMS-". The device ID shall be numerals corresponding to the location and shall be installed adjacent to the acronym sheet. Multiple device IDs of the same type shall be on the same line separated with a space. Examples: "CCTV-73", "RDS-219 220", "VDS-303 304".

Labels shall be installed along the top of the cabinet with MDOT ITS label at the top and the device ID labels immediately underneath. Labels shall be visible from both directions of travel.

Voltage Labels: A voltage label shall be provided on all cabinets or enclosures in accordance with the NEC labeling requirements. Voltage labels shall meet the following minimum requirements.

Labels shall be flat black lettering on a reflective yellow background. Lettering shall be a minimum of one inch (1") in height.

Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO M268 Type 1.

Labels shall include the voltages entering the cabinet and shall be one continuous adhesive sheet. Examples are "120VAC" or "24VDC".

Labels shall be installed on all cabinet doors.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

Type A Cabinet: All Type A cabinets shall be identical in manufacture and assembly and capable of supporting Radar Detection System units.

A Type A cabinet, intended for outdoor use, shall be provided with a minimum NEMA 3R rating. The cabinet enclosure shall be manufactured from 0.125-inch aluminum.

The cabinet shall provide a minimum of one ventilation louver on at least two sides. Any louver opening greater than 3/16 inch in any dimension shall be screened to prevent insect entry.

The cabinet shall be intended for strapped pole-mounting; provide all mounting hardware necessary including 1/2-inch stainless steel mounting straps.

A Type A cabinet enclosure shall be provided with dimensions of 18 inches (H) x 14 inches (W) x 8 inches (D) with a tolerance of ± 0.25 inches.

The cabinet door shall reveal the entire front opening of the cabinet for accessibility. The hinges shall be designed to prevent the door from sagging.

A single-piece 0.125-inch aluminum back panel shall be provided that covers no less than 90% of the cabinet back wall. Back panels shall be affixed to the enclosure with threaded fasteners and shall be removable from the enclosure with hand tools only and without requirement to remove the cabinet door, mounting straps, or any other components other than communications or device wiring.

The cabinet shall be furnished with doorstops, which retain the doors open in 90-degree and 120-degree positions.

A grounding lug shall be provided on the back panel that is directly bonded to the back panel capable of terminating #6 AWG wire.

RDS Communications Wiring. RDS communication wiring shall meet the following when using RS-485 communication cable:

- 1) Component rail physically and electrically fastened to the cabinet back panel.
- 2) Strain relief brackets for the comm. cable(s) and the RDS unit harness cables.
- 3) Parallel-connection single-stage surge suppressors for the four wire RS-485 data signal for the RDS units with integral or separate terminals for a minimum of three RDS comm. cables.
- 4) Parallel-connection zero-power dissipation surge suppressor for the 12-24VDC power supply for the RDS units with integral or separate terminals for a minimum of three RDS comm. cables and two RDS unit harness cables.
- 5) Connection/jumper wiring between the surge suppressors and the local/remote communications disconnect module(s) same as conductor size, type, and insulation color in the RDS comm. cable.

Type B Cabinet: All Type B cabinets, except those at solar power locations, shall be uniform in manufacture and assembly and capable of supporting the field equipment as shown on the plans.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

As a minimum, support is required for two (2) RDS units; one (1) network switch; two (2) radios/antennas; RDS comm. cable; and fiber drop panel terminations, regardless of the devices shown in the plans at a specific location.

A complete Type B cabinet shall be an assembly consisting of a cabinet housing and electrical subsystems.

A Type B cabinet housing shall be provided that conforms to the standards for a Type 170 336S with approximate exterior dimensions of 46 inches (H) x 24 inches (W) x 23 inches (D), including standard EIA 19-inch rack cabinet cage. The minimum clear vertical inside dimension of the 19-inch rack for equipment mounting shall be 39.5 inches. Standard cabinet accessories for traffic signal operations, such as controller, power distribution assembly, input/output file and termination panels, and the police panel, are not required as part of this cabinet assembly.

Hardware: All mounting hardware necessary for base or pole mounting as shown on the plans shall be provided. As a minimum, three (3) 3/4-inch stainless steel mounting straps shall be provided for pole mounted cabinets.

Hooks welded to the inside of each cabinet door shall be provided for hanging a side-opening, opaque, resealable, heavy-duty plastic documentation pouch with metal or hard-plastic reinforced holes for the door hooks. One pouch shall be provided with each cabinet.

A rack-mounted cabinet sliding storage drawer shall be provided in accordance with the following:

- 1) Approximate exterior dimensions 1.75 inches (H) x 16 inches (W) x 14 inches (D).
- 2) Telescoping drawer guides to allow full extension from the rack cage.
- 3) Opening storage compartment lid to access storage space for cabinet documentation and other items.
- 4) Supports a weight of 25 pounds when extended.
- 5) Non-slip plastic laminate surface attached to the compartment lid which covers a minimum of 90% of the surface area of the lid.
- 6) Mounted in the rack cage with the bottom surface approximately 9 inches above the bottom of the rack cage.

Side panels shall be provided within the two sides of the rack cabinet cage, inserted and fastened from the inside of the cage. Side panels shall be fabricated from 0.125-inch 5052 sheet aluminum alloy and sized to the full inside dimensions of the rack cabinet cage. Side panel surfaces for equipment mounting are denoted by cabinet side with the "right" side being the support pole side and by upper or lower as related to the sliding storage drawer. Upper right-side panel (support pole side of cabinet, above the drawer) and lower left side panel (opposite side from the support pole, below the drawer) are example side panel surface names.

A 12-inch-long DIN rail shall be included for future components mounted in the horizontal and vertical center of the lower left side panel.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

Electrical Subsystem: Type B cabinet electrical subsystems shall meet the following requirements. Note that the Type B cabinets at solar power locations are not required to meet Subsection 660.03.2 requirements.

- 1) An electrical distribution module comprised of the following DIN rail-mounted components:
 - a. Service entrance terminal block with positions for 120VAC line, neutral, and ground and capable of terminating minimally #6 through #8 AWG wire, located at one end of the mounting rail with an approximately 0.75-inch blank spacer module adjacent to the main cabinet breaker.
- 2) Main cabinet automatic overcurrent 15A circuit breaker that is UL-listed and of the mechanical-magnetic type rated for use from 0°F to 122°F minimum.
- 3) Main cabinet surge suppressor for single-phase 120VAC service entrance, parallel wired with a clamp voltage of approximately 280V and capable of a surge current of at least 20,000 amps.
- 4) Main cabinet filter for power line noise and switching transient suppression, integral to, or separate from and wired to, the main cabinet surge suppressor.
- 5) Electrical distribution terminal block for line and neutral conductors parallel wired to the main cabinet surge suppressor but non-filtered, with a minimum terminating capability of six conductors of #10 to #18 AWG. The terminal block shall be labeled as "ACCY POWER".
- 6) Electrical distribution terminal block for line and neutral conductors for circuits on the load/equipment side of the power line filter, with a minimum terminating capability of six conductors of #10 to #18 AWG. Label the block as "EQUIP POWER".
- 7) A singular electrical distribution bus bar for grounding and bonding conductors shall be located on the same rail but separate from the service entrance terminal block and connected to the entrance ground with a #6 AWG green insulated wire. The grounding bus bar shall have a minimum terminating capability of two (2) - #6 AWG conductors and ten (10) - #10 to #18 AWG conductors. Grounding requirements shall be per drawings and NEC Article 250 with additional information in the plan General Notes that shall be met unless otherwise specified in the plans. All costs associated with grounding shall be included in the overall contract price; no separate payment will be made for any grounding unless expressly noted in project documentation.
- 8) Ground fault interrupt duplex receptacle (NEMA 5-15R) with 2.5A circuit breaker connected to the ACCY POWER distribution block. Permanently affixed to the receptacle, provide two red, orange or green/yellow labels with minimum 0.25-inch lettering with the legend "300 WATTS MAX." This receptacle is for technician use only and shall not be used to power equipment.
- 9) Include two duplex non-GFCI equipment power receptacles (NEMA 5-15R) connected to the EQUIP POWER distribution block mounted on the upper rear corner of the cabinet upper right-side panel. Permanently affixed to the receptacle, two red, orange or green/yellow labels with minimum 0.25-inch lettering with the legend "75 WATTS MAX" permanently affixed to the receptacle.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

- 10) Interconnection wiring between all electrical distribution module components and the other systems included in or housed in the Type B cabinet.

Lighting Subsystem: A cabinet lighting subsystem shall be provided comprised of the following components:

- 1) One fluorescent lighting fixture, minimum 15-watt, mounted on the inside top front portion of the cabinet, with a cool white lamp with shatter-proof cover and operated by a normal power factor UL listed ballast.
- 2) A resistor-capacitor network noise suppressor installed across the light fixture power terminals.
- 3) Two door-actuated switches installed to turn on the cabinet light when either door is opened.
- 4) Powered from the ACCY POWER distribution block.

RDS Communications Subsystem: Where RDS are shown in the plans, DIN rail-mounted components shall have a nominal 24VDC output power supply, capable of user setting between 23 and 28VDC minimum, with minimum 1A output rating and minimum operating temperature range of -13°F to +158°F. Power supply shall provide terminal facilities for a minimum of three sets of #14 AWG conductors (in the RDS comm cable). Maximum size of the power supply shall be 1 inch (W) x 7 inches (H) x 7 inches (D). The power supply shall be connected to the EQUIP POWER distribution block for 120VAC input.

If a terminal server is used, interconnection wiring shall be provided between the RDS communications subsystem and the terminal server.

Where an RS-485 communication cable is installed, a surge suppressor for the RS-485 data signal, wired between the terminal server and the RDS units shall be provided. The surge suppressor shall protect the 4-wire RS-485 data signal with hybrid multi-stage suppression components including gas tube and silicon avalanche diode. The surge suppressor shall have a response time no greater than 1 nanosecond. The surge suppressor shall provide terminal facilities for a minimum of four (4) 2-pair cables of #22 AWG conductors.

Component Subsystem: The requirements listed for each component's subsystem shall be met by installing the required power, surge, etc. support equipment in the Type B Cabinet where that component is shown in the plans.

Type C Communication Hub Cabinet: A complete Type C cabinet shall be an assembly consisting of cabinet housing, base and electrical subsystems.

The Type C cabinet shall be an AASHTO/ITE/NEMA ITS Cabinet Standard specification Cabinet Housing #3 with two Cages #1. It shall be equipped with four (4) side mounting panels in the rack cabinet cages. The side mounting panels shall mount from inside the rack cabinet cage only. The side panels shall be fabricated from 5052 sheet aluminum alloy with a minimum thickness of 0.125 inch with minimum dimensions of 50 inches (H) x 21 inches (W). Standard cabinet accessories for traffic signal operations, such as controller, power distribution assembly, input/output file and termination panels, and the police panel, are not required as part of this cabinet assembly.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

A minimum of four (4) wiring pass-through holes shall be provided on the inside mounting panels to permit patch cords to pass between the two cabinet sides. Each pass-through hole shall be five (5) inches in diameter and shall be fully grommited for patch cord protection, with the holes positioned with two (2) in the cabinet front and two (2) in the cabinet rear and aligning horizontally between the two side panels.

Hardware: The hardware shall consist of a minimum of 16 plastic-coated or rubber-coated J-hooks or D-rings, minimum 1-inch depth and height, on the inside rails of the rack cabinet cages, to organize patch cords passing between the two cabinet sides. The J-hooks shall be installed in horizontally aligned pairs on the inside rails, with four (4) pairs in the cabinet front and four (4) pairs in the cabinet rear.

Hooks shall be welded to the inside of the two front cabinet doors for hanging the plastic documentation pouch. Two plastic documentation pouches shall be provided to store the cabinet and equipment documentation. Pouches shall be side-opening, re-sealable, opaque, and heavy-duty plastic material. Pouches shall have metal or hard-plastic reinforced holes for hanging from hooks included on the cabinet door. The pouches shall be of the size and strength to easily hold all wiring diagrams, equipment documentation, maintenance logbooks, etc.

Two sliding drawers shall be installed that are aluminum storage compartments mounted in the rack assembly with the approximate following dimensions: 1.75 inches (H) x 16 inches (W) x 14 inches (D). The compartments shall have telescoping drawer guides to allow full extension from the rack assembly. When extended, the storage compartments shall open to provide storage space for cabinet documentation and other miscellaneous items. Storage compartment shall be of adequate construction to support a weight of 25 pounds when extended. The tops of the storage compartments shall have a non-slip plastic laminate attached which covers a minimum of 90% of the surface area of the top.

Electrical Systems: Type C cabinet electrical subsystems shall include an electrical distribution module comprised of the following components:

- 1) Service entrance terminal block with positions for 120VAC line, neutral, and ground and capable of terminating minimally #6 through #8 AWG wire, located at one end of the mounting rail with an approximately 0.75-inch blank spacer module adjacent to the main cabinet breaker.
- 2) Main cabinet automatic overcurrent minimum 30A circuit breaker that is UL-489 and CSA 22.2 approved and plainly marked with trip, frame sizes and ampere rating. All circuit breakers shall be quick-make, quick-break on either automatic or manual operation. Contacts shall be silver alloy and enclosed in an arc-quenching chamber. Overload tripping shall not be influenced by an ambient air temperature range from 0°F to 122°F. Minimum interruption capacity shall be 5,000 amperes RMS.
- 3) Main cabinet surge suppressor for single-phase 120VAC service entrance, parallel wired with a clamp voltage of approximately 280V and capable of a surge current of at least 20,000 amps.
- 4) Main cabinet filter for power line noise and switching transient suppression, integral to, or separate from and wired to, the main cabinet surge suppressor.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

- 5) Electrical distribution terminal block for line and neutral conductors parallel wired to the main cabinet surge suppressor but non-filtered, with a minimum terminating capability of six conductors of #10 to #18 AWG. The terminal block shall be label as "ACCY POWER".
- 6) Electrical distribution terminal block for line and neutral conductors for circuits on the load/equipment side of the power line filter, with a minimum terminating capability of six conductors of #10 to #18 AWG. The block shall be as "EQUIP POWER".
- 7) Electrical distribution terminal block for grounding and bonding conductors located on the same rail but separate from the service entrance terminal block and connected to the entrance ground with a #6 AWG green insulated wire. The grounding block shall have a minimum terminating capability of two #6 AWG conductors and ten #10 to #18 AWG conductors.
- 8) Ground fault interrupt duplex receptacle (NEMA 5-15R) with 2.5A circuit breaker connected to the ACCY POWER distribution block. Two red, orange or green/yellow labels with minimum 0.25-inch lettering with the legend "300 WATTS MAX" permanently affixed to the receptacle. This receptacle is for technician use only and shall not be used to power equipment.
- 9) Two duplex non-GFCI equipment power receptacles (NEMA 5-15R) connected to the EQUIP POWER distribution block mounted on the upper rear corner of the cabinet upper right-side panel.

Interconnection wiring shall be installed between all electrical distribution module components and the other systems included in or housed in the Type C cabinet.

Rack mounted power strip outlets shall be connected to the EQUIP POWER distribution block, mounted near the top of the cabinet. The power strip shall incorporate eight (8) NEMA 5-15R receptacles. The power strip receptacle shall face the back of the cabinet and shall be recessed within the cabinet rack to provide a minimum spacing of three (3) inches between the outlet's face and the cabinet door when the door is closed.

Door open switches shall be provided on four doors and configure the switches so that any single door opening will provide a circuit closure. The assembly of switches shall be wired to a single two-position terminal block, with normally open circuit that closes upon a door opening.

Two cabinet ventilation fans shall be connected to the ACCY POWER distribution block, with a minimum capacity of 200 cubic feet of free air delivery per minute. The fan thermostat shall be set at its lowest limit or 70°F, whichever is greater.

Each of the four cabinet doors shall have an intake and filter as specified in Subsection 6.2.7.1 of the AASHTO/ITE/NEMA ITS Cabinet Standard specification.

Lighting Subsystem: The lighting subsystem shall be four (4) LED lighting fixtures mounted inside the top portions of each cabinet side. A cool white lamp, covered and operated by a normal power factor UL listed ballast shall be included with the fixture. A RC network noise suppression filter shall be installed in the light circuit. Door actuated switches shall be installed in the front and rear of each cabinet side, configured to turn on all cabinet lights when any door is opened. The lighting fixtures shall be powered from the ACCY POWER distribution block.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

CONSTRUCTION REQUIREMENTS:

General: This work shall meet the following general requirements:

Cabinets shall be installed and configured as shown in the plans and according to manufacturer's recommendations, including installations and dimensions given for pole-mounting in relationship to the surrounding grade.

All cabinets shall be bound to the pole grounding lug with minimum #6 AWG stranded copper bare or green-insulated cabinet grounding wire. Alternately on existing poles only, the cabinet grounding wire shall be bound to an existing pole grounding wire with a cast brass or copper alloy threaded compression connector within 4 inches of the existing pole grounding lug.

Electrical service or electronic devices shall not be installed in the cabinet or connected to the cabinet until ground testing for the pole or structure has been successfully completed and accepted, and the cabinet ground connection has been installed.

A cabinet wiring and interface diagram shall be provided and included in the required hanging, side-opening, re-sealable opaque, heavy duty plastic documentation pouch.

Type B: Equipment in the Type B cabinets shall be installed and configured in accordance with the requirements for that equipment, including RDS units, BDS units, VDS units, CCTV, network switches, radios/antennas, communication cables, and/or fiber distribution or drop panels.

Electronic devices shall not be installed in the cabinet until electrical service has been installed and activated, and the cabinet ventilation fan is operational.

Network switches and video encoders shall be installed in the topmost area of the cabinet rack. The equipment receptacles shall be used for power.

Supporting equipment/electronics for CCTV shall be installed on the lower area of the cabinet upper left side panel. There shall be no physical or access conflict with the network switch and video encoder. The EQUIP POWER distribution block shall be used for the power source.

Fiber drop panels shall be installed in a vertical configuration on the lower rear edge of the cabinet upper right-side panel.

Testing: All equipment associated with the ITS equipment cabinet shall undergo testing to verify conformance to requirements of the plans and special provisions. The Contractor shall conduct a Project Testing Program as required in the plan "General Notes". All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

Submittals: The submittal requirements defined in the plan "General Notes" shall be met unless otherwise specified in the plans. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

Quality Assurance: The quality assurance requirements defined below and in the plan "General Notes" shall be met unless otherwise specified in the plans. All costs associated with the quality assurance requirements shall be included in the overall contract price.

Installation or modification of the cabinets, hardware, and incidentals shall be done so in a good and workmanlike manner. All components and cables shall be placed in an organized fashion. Cables with excessive slack shall be zip-tied and/or placed so that they do not impede access to any components. Any debris associated with the installation or modification shall be cleaned and removed. All power supplies, surge suppressors, and components with the ability to be DIN rail or panel mounted, should be.

Standalone Acceptance Test (SAT): A SAT shall be performed on all equipment cabinets on this project after field installation is complete including, but not limited to, all field devices (RDS, CCTV, communications electronics, etc.) to be installed in or connected to that given cabinet.

A SAT for a given equipment cabinet shall only be performed in conjunction with the SAT for all devices installed in or connected to that given cabinet.

A visual inspection shall be made of the installation and the cabinet documentation.

Functional test shall be made of all cabinet equipment, including circuit breakers, receptacles, fan and thermostats, lights and door switches.

A measurement of DC power supply shall be made when operating under full load.

METHOD OF MEASUREMENT: Equipment Cabinets of the type specified will be measured per "Each".

BASIS OF PAYMENT: Equipment Cabinets, measured as prescribed above, will be paid for at the contract unit price per "Each", which shall be full compensation for all labor, tools, materials, equipment, system integration, testing, system documentation and submittals, mounting hardware, foundations, fiber splicing, external conduit entrances including conduit bodies and nipples, electrical service, pole grounding, terminations, and all incidentals necessary to complete the work and quality assurance.

Progress payments for Equipment Cabinets will be paid in accordance with the following:

- 80% of the contract unit price for complete installation of equipment cabinet and all interior components, electrical service feed (activated), interior cabinet components, all conduit entrances, grounding connection, and testing;
- An additional 10% of the contract unit price for completion of Standalone Acceptance Test (SAT) on site of all field devices housed or connected to the equipment cabinet; and
- Final 10% of the contract unit price upon Final System Acceptance.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ITS EQUIPMENT CABINETS

Payment will be made under:

Pay Item

Equipment Cabinet, Type B

Pay Unit

Each

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

DESCRIPTION: The Road Weather Information System (RWIS) consists of furnishing, installing and integrating a Road Weather Information System (RWIS). The work will be at the locations shown on the plans and will consist of providing all labor, materials, equipment and necessary incidentals to furnish, install, test, and make functional the RWIS. The sites for these systems will be at locations with known adverse weather conditions such as freezing, fog, flooding, high winds, etc. but may be placed at any location where system deployment for roadway weather information monitoring is deemed desirable by the Department.

The RWIS installations shall include all site preparation necessary for installation of the base station, communications/surveillance tower(s), cabinet bases, roadway sensors, temperature sensors, atmospheric sensors, pavement sensors, conduit and cable for remote sensor equipment, advance warning signs with flashers, system software installed at the Traffic Management Center (TMC) and all other equipment and related appurtenances to accomplish a complete and fully operational RWIS as described in this special provision and the details and plans developed for the specific sites.

MATERIALS: The Road Weather Information System (RWIS) shall include, but is not limited to, the equipment and materials included in this Special Provision. The Contractor is responsible for determining and providing any other equipment that is needed for safe and reliable operation of an RWIS. All materials shall comply with the "Buy America – Construction Materials" Special Provision.

In general, the system shall include a base station, and a pole or structure mounted remote sensor unit. The base station will include an appropriate Remote Processing Unit (RPU) for communications to a central processing server site, communications/networking equipment, atmospheric weather sensors, power supplies, surge protection, power distribution, cabinets, tower(s), base(s) and mounting structures. The remote processing unit for the sensors will include nonintrusive pavement sensors, present weather and visibility sensor(s), an equipment cabinet, and communications system. Except where noted on the plans, the remote sensor unit(s) shall be AC/DC powered and communicate with the base station via an Ethernet/IP and/or wireless communications system. The communications system shall connect the remote sensor unit(s) to the Department's ITS network.

The RWIS Controller will be placed in a cabinet, and the sensor cabinet shall be mounted as shown in the plans per manufacture recommendations.

REMOTE PROCESSING UNIT (RPU): The master Road Weather Information System (RWIS) RPU (Remote Processing Unit) shall include a CPU (Central Processing Unit), with flash memory, expansion slots, and interface ports including Ethernet, RS-232 serial, and RS-485 serial. These

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

ports are for system maintenance and device interfaces. All RPU electronics shall provide stable operation over a temperature range of -40°C to 60°C and 0-90% RH (Relative Humidity) non-condensing. The RPU will be capable of multi-tasking operations to optimize data acquisition from all connected devices. RPU (Remote Processing Unit) software configuration shall be performed by PC computer connection to the RPU Ethernet port or serial port.

COMMUNICATIONS EQUIPMENT: The RWIS RPU (Remote Processing Unit) shall communicate via Ethernet/IP with a central server and shall utilize Federal Standard NTCIP-ESS protocol, with some manufacturer-specific objects allowed. The server shall poll the RPU and be able to gather information and provide a communications interface via an Ethernet network connection to monitor weather conditions, traffic parameters as described in this specification and on the detailed plans prepared for the sites included in this project.

RWIS DATA: The data collected by the RWIS will be processed and temporarily stored in the RPU until transmitted to a central processing server site. Updates shall be completed on intervals not longer than every two minutes. The RWIS data shall be stored and displayed on a central processing server site, and available for access by agency users and designated information users on any PC connected to the Internet running Microsoft Edge or approved ARDOT web browser software. The RWIS user displays shall include all sensor data in a browser-based display format.

CABINET: The RPU shall be enclosed inside at a minimum with a NEMA 3R lockable aluminum enclosure that is resistant to damage by weather and vandals. All equipment, connectors, cables, power supplies, surge protection, grounding, power distribution, mountings, shelves, racks, fasteners, mounting, and base necessary to accommodate a fully operational RWIS shall be included as incidental to the cabinet and its installation.

The cabinet shall include a thermostatically controlled ventilation fan to adequately remove heat within the cabinet to prevent performance degradation and reduced reliability. Ventilation fan and filter louver shall be screened against the entrance of dust and foreign matter. A replaceable filter for incoming air shall be provided. The fan shall include a resistor-capacitor network noise suppressor installed across the fan motor power terminals.

All cabinets shall be provided with agency name, project number, device name and ID labels.

Labels shall meet the following minimum requirements.

1. Labels shall be flat black lettering on a reflective white background. Lettering shall be a minimum of one inch (1") in height.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

2. Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO Designation: M268, Type 1.
3. The agency name labels shall be "ARDOT ITS" in one continuous adhesive sheet.
4. The device ID labels shall include the device name as an acronym and a hyphen and shall be one continuous adhesive sheet.
5. The device ID shall be numerals corresponding to the location and shall be installed adjacent to the acronym sheet.
6. The device ID labels shall also include large 3-inch letters on the side of the cabinet that the ground plane is located that states "WARNING: UNDERGROUND WIRING - NO DIGGING"
7. Labels shall be installed along the top of the cabinet, with ARDOT ITS label at the top and the device ID labels immediately underneath. Labels shall be visible from both directions of travel. Additional labels may be required to meet visibility requirements. Project number labels shall be installed on the inside of the cabinet door.

A voltage label shall be provided on all RWIS transmitter cabinets in accordance with the NEC labeling requirements. Voltage labels shall meet the following minimum requirements.

1. Labels shall be flat black lettering on a reflective yellow background. Lettering shall be a minimum of one inch (1") in height.
2. Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO Designation: M268, Type 1.
3. Labels shall include the voltages entering the cabinet and there shall be one continuous adhesive sheet. Examples are "120VAC" or "120/240VAC".
4. Labels shall be installed on all cabinet doors.

Door locks shall be provided for all RWIS base and remote units cabinet doors all keyed to a Corbin No. 2 key type lock to be operated with a Corbin No. 2 key made from heavy-duty blanks. Two keys shall be provided with each cabinet.

All cabinets shall include a lighting fixture appropriate for the power source used. 120 Volt, fluorescent fixtures will be a minimum 15 watts with a cool white lamp with shatter-proof cover and operated by a normal power factor UL listed ballast. The fixture will be mounted on the inside top portion of the cabinet. The light shall be door switch controlled.

SENSORS: The Road Weather Information System (RWIS) shall include sensors which shall provide the following information:

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

Atmospheric Conditions: Sensors for the following conditions shall be provided and installed at the master RWIS site.

- 1) Air temperature
- 2) Relative humidity
- 3) Barometric pressure

Pavement Conditions: Sensors providing pavement conditions shall be installed at the location shown on the plans. It is the intent that the pavement sensors be positioned to measure data where the roadway surface conditions are representative of the overall surface. Pavement sensors mounted on the overpass will be AC/DC powered and communicate via manufacturer recommended cable with the RPU at the base station, unless otherwise specified in the plans.

Pavement temperature

- 1) Precipitation classification
- 2) Pavement water/snow depth

Visibility Conditions: Sensors providing visibility conditions shall detect conditions including rain, drizzle, snow, fog, mist, haze or clear; and Visibility with a measurement range of two (2) miles at a minimum with an accuracy of $\pm 10\%$.

Power. The Contractor shall be responsible for locating power service points. Locations shown on the plans as service points are shown for information only.

Warning Sign Assembly with Flashing Beacons. The RWIS installation shall include the furnishing and installation of new advance warning signs at the location shown on the plans. Mounting of the signs will conform to the design as shown in the plans and will be a breakaway sign support as shown in Standard Drawings SHS-3 and SHS-4. The messaging of the sign will be as shown in the plans. The materials used for the sign shall comply with section 723 of the 2014 Standard Specification and Supplemental Specification SS-723-1. The materials used for the breakaway sign support shall comply with section 730 of the 2014 Standard Specifications and Supplemental Specification SS-730-1.

When applicable, the standard sign as shown in the Manual on Uniform Traffic Control Devices (MUTCD) or the Department's Standard Drawings will be provided.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

The sign shall be supplemented with a two 12-inch flashing warning beacon which are AC powered to provide continuous operation of the flashers, timers, communications, etc. The warning beacon shall be LED.

The beacons shall have a flash rate as specified in the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

The supplemental flashing beacon shall be activated and deactivated from the RWIS central processing server site and the Department TMC via communication through the RWIS base station, unless otherwise shown on the plans. The activation and deactivation of the flashing beacons will be based on adjustable thresholds set at the RWIS base station and manual control in the TMC. Ethernet communications from the central processing server and Department TMC to the warning sign sites shall be via communication systems as shown on the plans. The sign sites shall include an adjustable automatic shutoff timer that will automatically turn off the flasher in a predetermined amount of time if activation is not renewed.

The Contractor may propose an alternative activation system submitted to the Engineer for review and consideration by the Department.

All beacon control and power components shall be housed in, at a minimum, a NEMA 3R type aluminum cabinet/enclosure unless otherwise specified in the plans. The cabinet/enclosure shall be constructed from 0.125-inch-thick Aluminum Alloy, Type 5052-1132. The cabinet/enclosure door shall be lockable in accordance with previous sections in this Special Provision.

STANDARDS: All materials, equipment, supplies, installations and testing shall comply with the project requirements, the latest editions of the following standards and industry practices as applicable, and all other standards, requirements and standard industry practices, and any state and local codes or ordinances that may apply.

Standards and industry practices shall include but not be limited to the following.

1. Federal Communications Commission (FCC) regulations
2. National Electric Code (NEC)
3. Underwriters' Laboratories Inc. (UL)
4. National Electrical Manufacturer Association (NEMA)

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

5. Institute of Electrical and Electronic Engineers (IEEE)
6. American Society of Testing and Materials (ASTM)
7. American National Standards Institute (ANSI)
8. Lightning Protection Institute (LPI)
9. National Electrical Safety Code (NESC)
10. Occupational, Safety, and Health Act (OSHA)

All materials, equipment, accessories and components that are not in accordance with the specific standards and requirements shall require approval by the Department. The Contractor shall bring any conflicts between referenced industry specifications and this Special Provision to the attention of the Engineer.

The Contractor shall use the latest version of referenced industry specifications, standards, and practices in force and in existence as of this project's advertisement date unless otherwise noted.

The Contractor shall acquire and use all applicable manuals, guidelines, and standards and practices that apply to the design, construction, and testing activities required to complete this project.

SUBMITTALS: All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

QUALITY ASSURANCE: The quality assurance requirements defined in the plan "General Notes" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

CONSTRUCTION REQUIREMENTS: The Contractor shall be responsible for locating power and communications service points. Locations shown on the plans as service points are shown for information only. The Contractor shall be responsible for providing all hardware, software and licenses to operate a complete system.

The Contractor will be responsible for all integration of the data and information described in this special provision into the Department's communications network, the iDriveArkansas.com web site, and the Department's traffic information system.

All equipment shall be installed according to the manufacturer's recommendations, the Plans, and as follows:

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

- Materials and associated accessories/adapters shall not be applied contrary to the manufacturer's recommendations and standard practices.
- The equipment shall be designed to prevent reversed assembly or improper installation of connectors, fasteners, etc. Each item of equipment shall be designed and installed to protect personnel from exposure to high voltage during equipment operation, adjustments, and maintenance.

The Contractor shall furnish and install all supports, clamps, cables, connections and other materials to secure the RWIS at the selected locations. The type of mounting poles to be supplied and the location of their installation shall be as specified herein and depicted in the Plans.

The Contractor shall be responsible for locating possible utility conflicts prior to excavating and installing the ground-plane system. In case of space limitations or structural modification constraints, the Engineer shall be informed prior to site construction.

The Contractor shall perform detailed pre-installation site surveys to determine the conditions at each site (e.g., power, grounding, communications, etc.) for the intended purpose and performance criteria.

Do not install electronic devices in the cabinet until electrical service has been installed and activated, and the cabinet ventilation fan is operational.

TESTING: All equipment associated with the RWIS site shall undergo testing to verify conformance to requirements of the plans and these special provisions. All costs associated with the Project Testing Program shall be included in the overall contract price: no separate payment will be made for any testing.

WARRANTY: The Contractor shall obtain and assign to the Department transferable manufacturers' warranties or guarantees on all electrical and mechanical equipment, consistent with those provided as customary practice. The Contractor shall guarantee satisfactory in-service operation of the mechanical and electrical equipment and related components for a period of 6 months following completion of the 30 day performance test, at no cost to the Department. Defective equipment or accessories shall be repaired or replaced according to applicable specifications and to the satisfaction of the Engineer, within a reasonable period of time during the 30 day performance test and the 6 month guarantee period.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

METHOD OF MEASUREMENT: Road Weather Information System (RWIS) will be measured per "Each" system used. The Road Weather Information System (RWIS) shall be measured for payment as follows:

- 30% of the contract unit price upon approval of and Pre-Installation test results.
- 70% of the contract unit price upon approval of Stand-Alone Site Test results.
- 90% of the contract unit price upon completion of the burn-in period.
- 100% of the contract unit price upon Final System Acceptance.

Warning Sign Assembly with Flashing Beacons will be measured per "Each" sign assembly upon demonstration of successful activation, de-activation, and automatic turn-off.

BASIS OF PAYMENT: Road Weather Information System (RWIS), measured as prescribed above, will be paid for at the contract unit price per "Each", which price shall include furnishing, installing, licensing application, coordination and acquisition, communications activation and monthly billing costs, RWIS grounding design submittal, system integration, and testing of a complete RWIS and software including the RWIS equipment/components as specified herein including grounding, power distribution/supply, surge protection, the cabinet, all cabling, connections to support structures (includes all incidental components, attachment hardware, mounting brackets, bolts, straps, or any other items to mount the RWIS equipment / components as intended), all required software, satisfactory completion of testing requirements and all work, equipment and appurtenances as required to effect the full operation including remote and local control of RWIS sites complete in place and ready to use, system documentation and submittals (including shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other materials necessary to document the operation of the RWIS), warranties, all labor, tools, materials, equipment and incidentals necessary to complete the work and quality assurance.

The Warning Signs Assembly with Flashing Beacons, measured as prescribed above, will be paid for at the contract unit price per "Each", which price includes furnishing, installing, system integration, and testing of a complete warning sign with flashing beacons including the sign materials, sign supports, support foundations, flashing beacon, controller, communications equipment, cabling, conduit, connections, satisfactory completion of testing requirements, all work, equipment and appurtenances as required to effect the full operation including remote and local control of Warning Sign Assembly with Flashing Beacons sites complete in place and ready to use, system documentation and submittals (including: shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other materials necessary to document the operation of the warning signs with flashing beacons), warranties, quality

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

ROAD WEATHER INFORMATION SYSTEM (RWIS)

assurance, all labor, tools, materials, equipment, and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item

Pay Unit

Road Weather Information System

Each

Warning Sign Assembly with Flashing Beacons

Each

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

NETWORKING EQUIPMENT

DESCRIPTION: This section specifies the minimum requirements for providing networking communication equipment, including terminal servers and associated cable, furnished and installed.

This section also specifies the minimum requirements for standalone and network switch module terminal servers, standalone and network switch module cellular modems, and Ethernet Network cable.

- The terminal servers shall be hardened. The terminal server device, also commonly referred to as a port server device, will be used to communicate bi-directionally between IP-based Ethernet network systems and existing field devices that communicate or are controlled via a full-duplex serial interface. Cellular modems shall be used to communicate via a cellular network to remote sites such as portable traffic signal sites, portable CMS, smart work zones, ITS site locations, or devices that need serial or Ethernet communication that can be provided over cellular service.
- The Ethernet network cable will be installed in conduit and cabinets between elements that are within 300 feet of each other to eliminate the need for two hardened switches. The work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, and test the networking equipment.

MATERIALS: Terminal servers, cell modems, and associated cabling will be placed in the field device cabinets and shall meet the following requirements.

All materials shall comply with the "Buy America – Construction Materials" Special Provision.

TERMINAL SERVER: Terminal server shall adhere to the following minimum requirements:

1. 10/100 Base-T Ethernet port connection
2. RJ-45/DB9 Serial port connection
3. RS-232/422/485 selectable serial connections
4. Baud rates up to 230 Kbps
5. Full Modem and hardware flow control
6. TCP/UDP Socket Services
7. UDP Multicast
8. Telnet and Reverse Telnet
9. Modem emulation
10. SNMP (Read/Write)
11. PPP
12. Port buffering
13. HTTP
14. Remote management

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

NETWORKING EQUIPMENT

15. DHCP/RARP/ARP-Ping for IP address assignment
16. LED status for link and power
17. The terminal server shall support a minimum of four (4) bi-directional serial communications over Ethernet 10/100 Base-TX.
18. Each terminal server shall have a minimum of four (4) EIA-232/422/485 serial interface ports. These ports shall be individually and independently configurable, directly or over the network, to EIA-232/422/485 mode of operation as defined by the EIA for data format, data rate and data structure (e.g., the number of bits, parity, stop bits, etc.). Each serial port shall support up to 230 Kbps.
19. Each serial port shall support IP addressing and socket number selection.
20. The equipment shall provide the capability to establish an IP connection directly from a workstation to any encoder IP address and socket number transport serial data.
21. Each terminal server shall have an Ethernet Interface (10/100Base-TX protocol, Full/Half- Duplex, Auto Sense (802.3), RJ-45).

E-Net Cable (Exterior CAT 6): Ethernet network cables shall adhere to the following minimum requirements.

1. 4 Pair #24 AWG STP Category 5E (or other comparable ethernet cable as approved by ARDOT) as per manufacturer's recommendations.
2. These items are paid for as ethernet network cable installed between cabinets and does not apply to other patch cords installed inside cabinets or huts.
3. Supplied ethernet network cable shall be suitable for use outdoors in ducts and as a minimum meet the following requirements:
 - a. Fully water blocked
 - b. Conforms to the National Electrical Code Article 800
 - c. UL 1581 certified
 - d. Voltage Rating 300 Volts or greater
 - e. Operating and installation temperature (-4°F to 140°F)
 - f. The allowable bend radius must be 10 times the Cable's Outside Diameter or smaller
 - g. Recommended for 1000 Base-T applications for a distance of 328 feet.

ETHERNET PATCH CORDS: The ethernet patch cords shall be furnished and installed as needed to connect the network switches with other equipment. Ethernet patch cords shall be considered an incidental component for this project and furnished and installed as needed to provide a functional system. Ethernet patch cords shall meet the following minimum requirements:

1. All patch cords shall be from the same manufacturer.
2. Shall incorporate four (4) pair #24 AWG stranded PVC Category 5E, or other equivalent Ethernet cable (generally meeting Category 5E Specifications and

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

NETWORKING EQUIPMENT

approved by ARDOT) as required by the manufacturer.

3. Shall be factory made; Contractor or vendor assembled patch cords are not permitted.
4. Shall be TIA/EIA 568-B.2-1 compliant. Patch Cords shall be compliant to T568B pin configuration (whichever is used).
5. Certified by the manufacturer for Category 5e performance criteria.
6. Length as needed. Excessive slack is not permitted.

SUBMITTALS: All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

The Contractor shall provide project submittals for network switches including scheduling requirements. The project submittals for terminal servers shall include but are not limited to the specific requirements in this subsection.

1. The Contractor shall submit detailed cut sheets which document compliance with all parameters required in this section. If a parameter is not covered in the cut sheet a signed statement from the manufacturer on letterhead shall be submitted as an attachment. Failure to address all requirements will result in rejection of the submittal.

CONSTRUCTION REQUIREMENTS: All networking equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

1. Ethernet network cable installed in conduit shall be installed and terminated per the manufacturer's recommended procedures. Slack Ethernet network cable shall be provided in pull boxes as indicated in the plans.

TESTING: All networking equipment shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the plan "General Notes." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

DOCUMENTATION: As-built Plans showing switch configuration and connections shall be provided to the Project Engineer and ITS Engineer in electronic format.

The Contractor shall submit documentation and proof of measured optical power budgets to all optical links of all type switches. All equipment and software must be fully functional and pass a Final Inspection by the ITS Manager and Project Engineer before being accepted by the owner.

WARRANTY: At a minimum, the warranty requirements defined in the plan "General Notes" or this specification, whichever is longer, shall be met. All costs associated with

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

NETWORKING EQUIPMENT

the warranty requirements shall be included in the overall contract price.

QUALITY ASSURANCE: The quality assurance requirements defined in the plan “General Notes” shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

METHOD OF MEASUREMENT: Terminal server will be measured per “Each” installation. Such measurement shall be inclusive of furnishing, installing, system integration and testing of a Terminal Server including all incidental components, attachment hardware, mounting shelf and hardware, testing requirements, warranties, and all work, equipment and appurtenances as required to provide a fully functional Terminal Server ready for use.

E-Net Cable (Exterior CAT 6), will be measured by the “Linear Foot”, and shall be obtained by accurate measurement of the runs including horizontally, vertically, aurally along the messenger cable, from the device to the device cabinet, and with liberal allowances made for slack in boxes, as indicated in the plans.

BASIS OF PAYMENT: Terminal servers, measured as prescribed above, will be paid for at the contract unit price bid per each. The price shall be full compensation for documentation and submittals, warranties, testing, all labor, tools, materials, equipment, quality assurance, and all incidentals necessary to complete the work. E-Net Cable (Exterior CAT 6) installed between cabinets will be paid for by “Linear Foot” measured horizontally.

Payment will be made under:

Pay Item	Pay Unit
Terminal Server	Each
E-Net Cable (Exterior CAT 6)	Linear Foot

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

DESCRIPTION: This section describes the Wireless Radio Interconnect Systems and specifies the minimum technical requirements for Radio Interconnect System devices furnished, installed, integrated, and tested at locations designated on the plans.

MATERIALS: The Contractor shall provide a functional wireless system in accordance with any applicable FCC (Federal Communications Commission) and FAA (Federal Aviation Administration) rules and regulations. The Contractor shall be responsible for supplying all equipment needed for a 100% functional wireless system capable of providing video, data, or both to each of the sites encompassed in the project. The Contractor shall ensure that each site location's wireless link has sufficient bandwidths for all devices to communicate properly across the network. The wireless link shall support the minimum bandwidth requirements with a 99.99% reliability factor. The Contractor shall be responsible for providing all equipment needed to connect to the existing Wireless Network. All components provided in this project must be 100% compatible with the existing Wireless Network (where applicable) and provide the same features, specifications, bandwidth, and capabilities unless specifically stated otherwise.

The wireless system shall include wireless communications devices that are inclusive of the following types: Signal Control, Broadband Type Short Range, Broadband Type Long Range, Television Broadcast Radio (TVBR) Type Short Range, TVBR Type Long Range. Each Type shall be capable of meeting all requirements as identified in this specification except broadband Type Long Range shall be capable of meeting all performance requirements for line-of-sight (LOS) wireless link distances of 10 miles or greater. Broadband Type Short Range shall be capable of meeting all performance requirements for LOS wireless link distances of up to 10 miles. TVBR Type Long Range shall be capable of meeting all performance requirements for non-line-of-sight (NLOS) wireless link distances of two (2) miles or greater. TVBR Type Short Range shall be capable of meeting all performance requirements for wireless link distances of up to two (2) miles. The Contractor shall provide all elements necessary to provide a functional system including radios, antennas, coaxial cable and connectors, lightning suppressors, mounting and grounding hardware, and any other equipment, hardware, enclosures and cabling required to make a complete and fully functional system.

GENERAL REQUIREMENTS: Unless specified otherwise in preceding sections, the radio interconnect systems discussed herein shall adhere to the following minimum technical requirements for Radio Interconnect System devices.

All furnished equipment shall be new, environmentally hardened, and capable of optimal operation in all weather conditions as applicable to Arkansas and Mississippi.

The Contractor shall test all radio hardware and required equipment necessary to provide a complete and fully operational system at no additional cost to the Department.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

The Contractor shall obtain and reserve necessary frequencies and apply for all required licenses by the FCC. The Contractor shall also meet the requirements for filing with the Federal Aviation Administration for proposed structures, which are based on a number of factors: mounting height, proximity to an airport, location, and frequencies emitted from the structures, etc. as described in CFR Title 14 Part 77.9. The charges and fees incurred while applying for and obtaining licenses are included in the pay items outlined in this specification and will not be paid for separately.

The wireless communication equipment shall be fully interchangeable by radio frequency, radio type and compatible with the existing network to transmit all data from field devices across the Department wireless network to communications towers (where applicable), hubs, and/or nodes to be transmitted to the ITS Network by way of existing network equipment.

The wireless radio equipment shall be configured for minimal noise and interference as determined by project location and the manufacturer's equipment specifications and include the required channel(s) to communicate with radios of the same type and operating as designed.

The Mean Time Between Failures (MTBF) shall be at least 87,658 hours (10 years). If the radio system has not been manufactured long enough to validate the corresponding MTBF then Contractor may present the MTBF from a radio system of similar type for approval by the Department. The Contractor must first request approval by the Department to permit the submittal of MTBF specifications of an approved radio system.

The minimum bandwidth provided per each individual link shall be the cumulative minimum bandwidth of each device type and number of each per device utilizing that link according to the following table of min bandwidth requirements.

Device Type	Min Bandwidth per Device
CCTV PTZ	512 kbps
CCTV Fixed	256 kbps
DMS	128 kbps
Detection	256 kbps

Radio Interconnect System General Equipment requirements are as follows:

1) Network Features

- a. 802.3i 10 Mbps Ethernet.
- b. 802.3u 100 Mbps Ethernet with auto-negotiation.
- c. Network topology: Point-to-Point (PTP) and Point-to-Multipoint.
- d. The RF network latency shall not exceed 15ms between each transmitting and receiving device.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

- e. The wireless radio shall be a Layer 2 device by operating similar to a switch or bridge device and meeting all requirements of a Layer 2 switch as specified in the Networking Equipment Special Provision. The wireless radio shall be capable of connecting to the Network via an RJ-45 port.
 - f. The wireless radios shall be fully interchangeable and compatible with the existing wireless devices operating on the same frequency and of the same type.
- 2) Management
- a. Local management interface via RS-232, RS-422/485, or RJ45.
 - b. Remote Management, i.e., HTTP, SSH, Telnet, SNMP, TFTP, or CLI.
 - c. Web-based Management (HTML) shall have Web GUI.
 - i. The web-based management shall be password protected management software allowing remote configuration.
- 3) Power Requirements
- a. The wireless radios may transmit/receive data and receive power via Ethernet cable by PoE. PoE devices adhering to the alternative A/B standards for PoE are recommended. For proprietary PoE devices, the Contractor shall be responsible for ensuring that these devices are not connected to IEEE standard PoE switches or vice versa as this may result in damage to the device and/or switch.
 - b. Output Voltage: voltage and power ratings shall adhere to 802.3af or 802.3at for devices conforming to the IEEE standards.
- 4) Environmental Requirements
- a. Radio interconnect field equipment shall be fully operational in all-weather conditions occurring in Arkansas and Mississippi.
 - b. Relative humidity 95% non-condensing.
 - c. Weather, Water, & Dust Proof, e.g., IP-66/IP-67.
 - d. Operating temperature shall exceed the range from -35°F to 135°F

RADIO INTERCONNECT SYSTEM, SIGNAL CONTROL: The radio interconnect system, signal control shall provide communications between the master and the local intersections by RF data link. The radio shall operate in the 900 MHz data frequency bands. Each local intersection shall have a transceiver, power supply and an antenna. A transceiver shall be provided at the master location. The Signal Control Radio Interconnect System is not subject to the requirements outlined in Radio Interconnect System General Equipment Requirements.

SPECIFIC REQUIREMENTS:

Antennas: Two (2) antennas will be required at repeater stations, one for each radio. Measures shall be taken to minimize the chance of interference between these. One effective technique for limiting interference shall employ vertical separation. In this arrangement, one antenna is mounted

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

directly over the other, separated by at least four feet (4'). This takes advantage of the minimal radiation exhibited by most antennas directly above and below their driven elements.

Another interference reduction technique is to cross-polarize the repeater antennas. If one antenna is mounted in the vertical plane and the other in the horizontal plane, an additional 20 dB attenuation can be achieved. The corresponding stations shall use the same antenna orientation when cross-polarization is used.

INTERFACE WIRING: A null modem cable shall be required between the Data Interface connectors of the two radios forming a repeater station, allowing radios to exchange data even though they are both configured as DCE (data circuit-terminating equipment) devices.

RADIO INTERCONNECT SYSTEM, BROADBAND: The radio interconnect system, broadband, shall be a licensed or unlicensed wireless communication device as called out in the plans or directed by the Engineer, capable of transmitting and receiving broadband wireless communication at distances as called out on the plans. The Contractor shall be responsible for determining the most optimal frequency range to furnish radios that will provide wireless links with sufficient bandwidth for all devices to communicate properly across the network. When expanding the wireless link of an existing system, the Contractor shall ensure the frequency of the new equipment is compatible with the existing system. The radio system shall be used to connect ITS device sites and Traffic signal systems to the existing ITS Network as described in project plans. The broadband wireless communication system shall be furnished with all necessary hardware and software to include radios, repeaters, antennas, cable, surge protection and connectors in accordance with the plans and specifications to establish stable wireless communication channel(s) between two (2) or more LOS/partial LOS devices setup in point-to-point or point-to-multipoint configurations. The broadband radio interconnect requirements shall be as follows:

- 1) The broadband radios furnished and installed shall meet all regulations set forth by the FCC part 15 of the FCC rules.
- 2) Short range broadband radios shall be capable of transmitting up to 10 miles.
- 3) Long range broadband radios shall be capable of transmitting at distances exceeding 10 miles.
- 4) The short range and long-range broadband radios shall provide a minimum data rate of 150 Mbps as tested by bandwidth speed test.
- 5) The short range and long-range broadband radios shall provide reliable communication and sufficient bandwidth (i.e., greater than the cumulative minimum bandwidth of each device that will utilize the link) for all devices utilizing the wireless link(s).
- 6) Short range and long-range broadband radios shall support 802.11 a/n wireless standards.
- 7) Short range and long-range radios shall have 2 or more Gigabit Ethernet ports.
- 8) Short range and long-range radios shall be capable of a TX power of 24 dBm or better.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

- 9) The Contractor may propose the use of multiband (dual band, tri band, etc.) radios using licensed 4.9 GHz and unlicensed 5.8 GHz and 2.4 GHz bands if bandwidth requirements and path interference warrants the use of such radios and approved by the Engineer.

RADIO INTERCONNECT SYSTEM, TELEVISION BROADCAST RADIO (TVBR): TVBRs are unlicensed radios designed to produce, transmit, and/or receive radio communication signals at select geographical locations. These radios transmit on available channels in the broadcast television frequency band. The TVBRs shall be proposed on project plans and drawings in geographical locations lacking visual line-of-sight transmission between the proposed transmitting and receiving devices. These devices shall provide partial line-of-sight (LOS) and/or non-line-of-sight (NLOS) radio transmission to establish network communication in areas with obstacles obstructing LOS wireless communication.

The TVBRs operate under the Federal Communications Commission (FCC) approved white space TV band database. Each TVBR shall determine the available TV channels it can operate on before it will be functional for typical usage. The TVBRs retrieve a list of available channels via an Internet connection from the white space TV band database dependent on the TVBRs specific geographic coordinates, which are acquired and saved on the device during configuration. Typically, TVBRs can transmit and receive radio communication on six (6) MHz channels. TV Channels 14-36 and 38-51 are available for TVBRs operating on TV channels in the UHF frequency range (470-698 MHz). Once a TVBR is registered with the white space TV band database and associated with a specified operating channel, the channel is removed from the list of available channels. The Contractor shall be responsible for determining the availability of TV bands in the geographical areas for all TVBRs proposed. The Contractor shall provide a list of available TV channels in the UHF frequency range to the Engineer, or approved designee. The Contractor shall not procure, purchase, furnish, or install TVBRs or any related equipment without the consent of the Engineer or the approved designee without first receiving confirmation from the Engineer or their designee that verification has been made that the specified channels are available in all geographic location(s) for each proposed TVBR site.

SPECIFIC REQUIREMENTS: The TVBR, type long range and short range, shall be capable of LOS, partial LOS, and NLOS wireless radio transmission. Each TVBR and antenna shall be pole mounted or mounted to an approved structure. The antenna shall be mounted in the immediate location of the TVBR to minimize attenuation due to cable length. The TVBR radio interconnect requirements shall be as follows.

- 1) The TVBR's procurement and installation shall meet all regulations set forth by the FCC 47 CFR 15 subpart H - Television Band Devices.
- 2) The TVBR's shall be capable of LOS and NLOS wireless transmission operating on the UHF TV band frequency range (470-698 MHz).

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

- 3) The Type Long Range TVBR shall be capable of communicating over wireless link distances exceeding two (2) miles. The bandwidth capacity shall exceed 25 Mbps provided LOS transmission and 5 Mbps provided NLOS transmission.
- 4) The Type Short Range TVBR shall be capable of communicating over wireless link distances up to two (2) miles. The bandwidth capacity shall exceed 3 Mbps provided for LOS transmission and 1 Mbps for NLOS transmission.
- 5) The TVBR's transmit power shall not exceed 30 dBm for stable RF communication given the minimum distance and bandwidth requirements.
- 6) The RF network latency for Long Range TVBR shall not exceed 5ms between each transmitting and receiving device.
- 7) The MTBF shall be at least 43,829 hours for Type Short Range TVBR and 87,658 for Type Long Range TVBR. If the TVBR system has not been manufactured long enough to validate the corresponding MTBF, the Contractor may present the MTBF from a radio system of similar type for approval by the Department. The Contractor shall first request approval by the Department to permit the submittal of MTBF specifications of an approved radio system.

CONSTRUCTION REQUIREMENTS: All equipment shall be installed according to the manufacturer's recommendations, the plans, and as follows.

INSTALLATION SERVICES: The Contractor shall prepare a comprehensive Network Design, Wireless Evaluation, and Installation Plan for the wireless network to document how it will be implemented and integrated with the existing system. All required Federal Communications Commission (FCC) and Federal Aviation Administration (FAA) applications and filings shall be prepared by the Contractor on behalf of the Department, including any modifications to existing Department licenses. The Contractor shall submit a copy of the Network Design, Wireless Evaluation, Installation Plan, and copies of any FCC license applications to the Engineer. The Department reserves the right to reject any network designs and installation plans submitted. If rejected, the Contractor will be responsible for submitting revised network design and/or installation plan.

The Contractor shall provide all labor, tools, materials, equipment, and transportation necessary to conduct and complete the Wireless Evaluation. The cost of the wireless evaluation and report shall be included in the contract unit price per the radio interconnect system pay items. The Wireless Evaluation report shall include:

- 1) Line-of-site photographs taken at proposed sites. The photographs shall be taken at antenna-height level.
- 2) Identification of any wireless interference, line-of-sight concerns, or any other issues that would hinder the Contractor's ability to deliver a functional wireless link. The Contractor

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

shall present alternative solutions if the throughput or any other requirements cannot be met.

- 3) Planned wireless topology identifying point-to-point and point-to-multipoint radio groups.
- 4) Frequency analysis, through a spectrum analysis at each site, and proposed frequency allocation.
- 5) Radio test results for each communication link, including received signal strength, noise floor, and throughput results recorded using "Iperf", or equivalent software.

The Contractor shall provide a written inventory of items received and the condition in which they were received. The inventory shall be inclusive of make, model, and serial numbers, MAC address, and installation GPS coordinates. All equipment shall be installed according to the manufacturer's recommendations or as directed by the Department.

Any new, additional or updated drivers required for the existing ATMS software to communicate and control new radio interconnects installed by Contractor shall be the responsibility of the Contractor.

TESTING: All equipment associated with the Radio Interconnect System at each site shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the plan "General Notes." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

GENERAL REQUIREMENTS: The Engineer, ITS Engineer, and/or their designee(s) are only responsible for attending and observing each test and reviewing and approving the Contractor's test results documentation. The Engineer, ITS Engineer, and/or their designee(s) reserve the right to attend and observe all tests. The Contractor shall perform the Standalone Acceptance Test (SAT) with the Engineer, ITS Engineer or his designee present.

Each test shall fully demonstrate that the equipment being tested is clearly and definitely in full compliance with all project requirements.

Test procedures shall be submitted and approved for each test as part of the project submittals. Test procedures shall include every action necessary to fully demonstrate that the equipment being tested is clearly and definitely in full compliance with all project requirements. Test procedures shall cross-reference to these Specifications or the Project plans. Test procedures shall contain documentation regarding the equipment configurations and programming.

No testing shall be scheduled until approval of all project submittals and approval of the test procedures have been granted by the Department.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

The Contractor shall provide all ancillary equipment and materials as required in the approved test procedures.

The Contractor shall request in writing the Engineer's approval for each test occurrence a minimum of 14 calendar days prior to the requested test date. Test requests shall identify the test to be performed and the equipment to be tested. The Engineer reserves the right to reschedule test requests if needed.

All tests shall be documented in writing by the Contractor in accordance with the test procedure and submit to the Engineer within seven (7) days after the completion of the test. Any given test session is considered incomplete until the Engineer has approved the documentation for the given test session.

All tests deemed by the Engineer to be unsatisfactory shall be repeated by the Contractor. When the Contractor requests a test occurrence that is a repeat of a previous test, the Contractor shall summarize the diagnosis and correction of each aspect of the previous test that was deemed unsatisfactory. The test procedures for a repeated test occurrence shall meet all the requirements of the original test procedures, including review and approval by the Engineer and ITS Manager or his designee.

The satisfactory completion of any test shall not relieve the Contractor of responsibility to provide a completely acceptable and operating system that meets all requirements of this project.

STANDALONE ACCEPTANCE TEST (SAT): In addition to the requirements set forth in the plan "General Notes", successful communications shall demonstrate, at minimum, the ability of a wireless transceiver to send clear, uninterrupted video if the radio is intended to carry a video signal or an error-free data message of at least 200 KB if the radio will not carry video signals, to the receiving station and have it processed for viewing and confirmation. A minimum of 30 test transmissions shall be attempted at each test site. If a failure occurs at the locations selected, it will be the responsibility of the Contractor to re-check the test area to determine if a problem exists. When problem(s) occur, it will be the Contractor's responsibility to perform additional tests as required to define the cause of the problem and confirm the final working functionality. If areas of non-performance represent more than the Contractor's predicted link reliability it will be the Contractor's responsibility to correct such problems at the sole expense of the Contractor. Additional costs associated with the repeated tests will be the sole responsibility of the Contractor.

The Contractor shall prepare and execute a detailed system acceptance test plan, including detailed system acceptance test procedures. The Contractor shall submit a copy of all system acceptance test plans and link reliability predictions to the Engineer through the standard Department submittal process, as noted in the plan "General Notes."

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

LOCAL ETHERNET SYSTEM TESTING: Successful communications shall demonstrate, at minimum, the ability of a wireless transceiver to send video and an error-free data message to the receiving station and process for viewing and confirmation. A minimum of 30 test transmissions shall be attempted at each test site. If a failure occurs at the locations selected, it will be the responsibility of the Contractor to re-check the test area to determine if a problem exists. When problem(s) occur, it will be the Contractor's responsibility to perform additional tests as required to define the cause of the problem and confirm the final working functionality. If areas of non-performance represent more than the Contractor's predicted link reliability, it will be the Contractor's responsibility to correct such problems at the sole expense of the Contractor. Additional costs associated with the repeated tests will be the sole responsibility of the Contractor. The Contractor shall prepare and execute a detailed system acceptance test plan, including detailed system acceptance test procedures. The Contractor shall submit a copy of all system acceptance test plans to the Engineer through the standard Department submittal process.

WARRANTY: The radio interconnect system shall be warranted to be free of manufacturer defects in materials and workmanship for a period of one (1) year from the date of final acceptance. Equipment covered by the manufacturer's warranties shall have the registration of that component placed in the Department's name prior to Final Inspection. The Contractor is responsible for ensuring that the vendors and/or manufacturers supplying the components and providing the equipment warranties recognize the Department as the original purchaser and owner/end user of the components from new. During the warranty period, the supplier shall repair or replace with new or refurbished material, at no additional cost to the State, any product containing a warranty defect, provided the product is returned postage-paid by the Department to the supplier's factory or authorized warranty site. Products repaired or replaced under warranty by the supplier shall be returned prepaid by the supplier.

During the warranty period, technical support shall be available via telephone within four (4) hours of the time a call is made by the Department, and this support shall be available from factory certified personnel. During the warranty period, updates and corrections to control unit software shall be made available to the Department by the supplier at no additional cost.

METHOD OF MEASUREMENT: The radio interconnect system components of the type specified will be measured per "Each" installation.

Partial payments for the radio interconnect system(s) will be measured for payment per each as follows:

- 1) 70% of the contract unit price upon completion of the installation and the Standalone Acceptance Testing (SAT) of the wireless network;
- 2) An Additional 20% of the contract upon conditional system acceptance; and

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

RADIO INTERCONNECT SYSTEM

- 3) Final 10% of the contract unit price upon final system acceptance.

BASIS OF PAYMENT: The radio interconnect system components, measured as prescribed above, will be paid for at the contract unit price per each, which price shall be full compensation for furnishing all labor, tools, equipment, warranties, connecting, testing, materials inclusive of radio, software, base stations, power supply, antennas, cables and connectors, lightning suppressors, mounting and grounding hardware, enclosures, receivers, and transceivers, all documentation, submittals, and system documentation including shop drawings, operations and maintenance manuals, wiring diagrams, and block diagrams, and all incidentals necessary to complete the work and quality assurance.

The installation shall provide an appropriate RF data link that is fully integrated and operational with the existing system.

The price bid for the spare parts shall be measured per "Each" and in accordance to the specifications and all system requirements.

Payment will be made under:

Pay Item

Radio Interconnect, Broadband, Short Range

Pay Unit

Each

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

LIGHTWEIGHT AGGREGATE CONCRETE (AE)

Section 802, Concrete for Structures, of the Standard Specifications for Highway Construction, Edition of 2014, as amended by **Supplemental Specification 802-5**, is hereby supplemented as follows:

DESCRIPTION: This work consists of furnishing and placing air-entrained lightweight aggregate concrete as shown on the Plans and in accordance with the requirements of this Special Provision.

MATERIALS: Lightweight aggregate shall conform to ASTM C330, *Standard Specification for Lightweight Aggregates for Structural Concrete*. Fine aggregate conforming to the requirements of Section 802 may be used.

Macrofibers: Synthetic macrofibers shall be incorporated into the concrete mixture at a dosage rate of 3.0 lb/yd³. The fibers shall have a minimum length of 2 inches, shall meet the requirements for Type III synthetic fibers in ASTM C1116, and shall be compatible with the concrete mixture. Fibers shall be added and dispersed in accordance with the manufacturer's recommendations to ensure uniform distribution throughout the mixture.

Mix Design: The aggregate gradation requirements of Table 802-3 and the optimized combined aggregate gradation requirements of Subsection 802.05(b) shall not apply to Lightweight Aggregate Concrete (AE). Lightweight aggregate shall conform to ASTM C330. Coarse lightweight aggregate shall not exceed 55% of the total concrete volume. The aggregate gradation and proportions shall otherwise be established as part of the approved mix design.

The minimum compressive strength requirement for Class S(AE) concrete in Table 802-1 shall not apply to Lightweight Aggregate Concrete (AE). Lightweight Aggregate Concrete (AE) shall meet the following requirements:

Property	Requirement
Maximum Equilibrium Density	105 lb/ft ³
Minimum Compressive Strength at 28 days	3,500 psi
Synthetic Macrofiber Dosage	3.0 lb/yd ³

No later than 90 days before the first concrete placement, the Contractor shall obtain lightweight aggregate samples from proposed suppliers and develop trial batches using the proposed materials. The trial mixtures shall be tested for slump, air content, compressive strength, and equilibrium density. The trial batches shall also be evaluated for cracking and curing requirements. The Contractor shall prepare all specimens necessary for the required testing and evaluation.

Additional trial batches shall be developed as necessary to demonstrate compliance with the requirements of this Special Provision. Test results shall be submitted with the mix design for approval by the Materials Division.

As part of the trial batch evaluation, the Contractor shall construct a 10 ft × 10 ft trial slab, 6.25 inches thick, using the proposed concrete mixture and materials. The trial slab shall be

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

LIGHTWEIGHT AGGREGATE CONCRETE (AE)

evaluated for cracking and the effectiveness of the proposed curing procedures. Cracking observed in the trial slab shall be documented and submitted with the trial batch results for evaluation by the Engineer.

Laboratory-controlled trial batches shall also be prepared using the proposed concrete mixture and materials. The temperature of the fresh concrete at the time of specimen preparation shall be within each of the following ranges: 85 °F to 90 °F, 70 °F to 75 °F, and 50 °F to 60 °F. For each temperature range, specimens shall be prepared and tested to demonstrate a minimum compressive strength of 3,500 psi at 28 days and a maximum equilibrium density of 105 lb/ft³.

CONSTRUCTION: Lightweight aggregate shall be stockpiled sufficiently in advance of concrete placement to provide the material necessary for the scheduled bridge deck placement. Lightweight aggregate shall be stored and maintained in a condition suitable for production of the approved mixture.

Lightweight Aggregate Concrete (AE) shall be placed in the dry.

Each deck lane shall not be opened to traffic until the Lightweight Aggregate Concrete (AE) has attained a compressive strength of at least 3,500 psi and the required curing has been completed.

QUALITY CONTROL AND ACCEPTANCE: Quality Control and Acceptance shall be in accordance with Subsection 802.06, except as modified herein.

For Lightweight Aggregate Concrete (AE), air content shall be determined in accordance with AASHTO T 196 in lieu of AASHTO T 152. Equilibrium density shall be determined in accordance with ASTM C567.

Lightweight Aggregate Concrete (AE) having an equilibrium density exceeding 105 lb/ft³ will be considered nonconforming. Failure to meet the maximum equilibrium density may require removal and replacement of the entire concrete placement at the Contractor's expense. Disposition of the nonconforming concrete will be determined by the Engineer in accordance with the applicable provisions of the Contract.

Subsection 802.25(a), Basis of Payment, is hereby supplemented by the following:

Payment will be made under:

Pay Item	Pay Unit
Lightweight Aggregate Concrete (AE)	Cubic Yard

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

MAINTENANCE OF TRAFFIC

Section 603 Maintenance of Traffic and Temporary Structures of the Standard Specifications, Edition of 2014, is hereby expanded as follows:

The Contractor shall provide additional traffic control through the project as defined below, to always provide a safe and convenient traffic flow, day and night 7 days a week, throughout the limits of the work zone and the approaches thereto.

The Contractor shall assume full responsibility for the safe and efficient movement of traffic through the construction area for the duration of the project. Prior approval by the Engineer shall be required for any alterations of traffic patterns shown on the plans.

All traffic control devices shall be in accordance with the details shown in the plans or on Standard Drawings TC-1, TC-1A, TC-2, TC-3, TC-4, TC-5, and TC-6. The Contractor will be responsible for furnishing, placing, maintaining, relocating, and subsequent removal of all traffic control devices within the limits of the project.

Except where shown on the plans or approved by the Engineer, work on the Hwy. 49 main lanes and bridge shall be accomplished in partial widths to maintain traffic.

The Contractor shall notify the Engineer a minimum of 5 full business days prior to closing a lane. If the Contractor fails to give the proper notification, the lane closure will not be allowed until 5 full business days after the notification was given.

When closing a lane, a Portable Changeable Message Sign shall be placed in advance of the construction signs advising motorists of the lane closure. Portable Changeable Message Signs shall be placed prior to placement of lane closure signing and at locations as directed by the Engineer.

The Contractor shall modify his schedule so that no work will be performed for the time period of the day before the Holiday through the day after the Holiday for the following Legal Holidays:

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day & the Following Day
- Christmas Eve & Christmas Day

If the Legal Holiday is immediately prior to a weekend or immediately following a weekend, the weekend will be considered a part of the Holiday. The bridge maintenance of traffic 11'-0" lane

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

MAINTENANCE OF TRAFFIC

will remain open during holidays with the Portable Traffic Signal System with Countdown-timers left in place and operational. The Contractor shall be responsible for maintaining the operation of the signal system and traffic timer units - countdown during holidays for safe traffic passage in the construction zone.

The Contractor will be permitted, with the approval of the Engineer and with appropriate maintenance of traffic controls in place for safety, to periodically close both lanes of the bridge for 15-minute intervals. The Contractor shall schedule and perform the work, including the placement and removal of traffic control devices, to ensure that a Highway 49 traffic lane is always open, with the aforementioned exceptions, or an accident, or event beyond the Contractor's control.

Special events or occurrences could cause traffic to become congested. When this occurs, the Contractor shall immediately modify the work schedule, working methods, or procedures to lessen the impact of the work on traffic or as directed by the Engineer with the understanding that the Contractor is to maintain one open traffic lane across the bridge and is NOT required to remove in-place maintenance of traffic items.

The Contractor will regulate the access of work vehicles and equipment to the work area while ensuring safety to the traveling public and minimum damage to highway facilities. Any damage to the highway facility or vegetation caused by the Contractor shall be repaired at no cost to the Department. Unless operating within the area closed to traffic, the Contractor's work vehicles shall travel in the direction of the normal traffic flow. Only those vehicles necessary for the work shall be allowed on the bridge in the work zone. All other vehicles, including employee vehicles, shall be parked at a safe location outside the work zone, as approved by the Engineer. The Contractor will be responsible for safely transporting employees to the respective work locations, since the bridge and approaches are approximately a mile in length.

General equipment storage areas or operations centers will be allowed within the limits of the right of way only where permitted by the Engineer. At the end of the workday, equipment shall be either shielded from traffic by an approved positive barrier or placed so it is not within 30 feet of any lane carrying traffic. Storage and placement of equipment and materials under the bridge during the day and at the end of the day shall comply with the "Coordination of Work" Special Provision.

The Contractor shall conduct his operations so that no equipment or personnel shall occupy any portion of the roadway that remains designated for the passage of traffic without the approval of the Engineer and appropriate maintenance of traffic controls in place.

The Contractor is not to use the levee road. The levee road is owned by the Helena Levee District and is not a public facility.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

MAINTENANCE OF TRAFFIC

The Contractor shall refer to all contract special provisions that affect Maintenance of Traffic, such as but not intended to be an all-inclusive list: the “Portable Traffic Signals with Traffic Timer Units – Countdown”, “Motorist Assistance Patrol”, “Wrecker Service”, “Traffic Control Devices in Construction Zones”, and “Portable Camera Trailers”.

CONTRACTOR CONTACT INFORMATION: The Contractor shall provide the Engineer contact telephone numbers and names of the employees that are entrusted to make decisions and implement any required corrective actions concerning traffic or work zone issues. The Traffic Control Supervisor shall be responsible for updating the contact information and providing current telephone numbers for contacts during working hours and for continuously available after-hours on-call contacts.

Refer to the “Traffic Control Supervisor” and “Motorist Assistance Patrol” Special Provisions for additional contact information requirements and responsibilities.

CONTRACTOR SAFETY TRAFFIC PLAN: The Contractor shall be required to create, as an addition to the Construction Personnel Safety Plan, a site-specific Traffic Safety Plan for multiple response scenarios. The Traffic Safety Plan goals will be to have trained personnel prepared to take immediate action to report an issue to the Engineer and “911” in the event of a medical emergency or accident. Flaggers will need to be available to prevent additional bridge blockage with traffic moving on to the bridge.

The proposed Traffic Safety Plan shall include steps to ensure that local Law Enforcement can access the situation in a time sensitive manner. Basic traffic scenarios will need to cooperate with Law Enforcement to assist with congestion and lane blockage. Only Law Enforcement by law can direct traffic.

BASIS OF PAYMENT: There shall be no direct payment for fulfilling the requirements of the Special Provision, but compensation shall be considered included in the price bid for Maintenance of Traffic. Traffic control devices, shown on the plans for payment, will be paid for at the contract unit price for each item involved. All additional traffic control devices beyond the contract amount shall be provided, maintained, and replaced, if necessary, at no cost to the Department.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PORTABLE CAMERA TRAILERS

Description.

This item shall consist of furnishing, installing, maintaining and moving from one location to another Portable Camera Trailers in accordance with the plans and these specifications. The Portable Camera Trailers will be located both in and near the limits of the project.

Trailers to be Furnished.

(a) Contractor Responsibility. The Contractor shall provide the quantity and type of Portable Camera Trailers as specified below. All equipment offered under this specification shall be new. The Contractor will install the Portable Camera Trailers at locations as determined by the Engineer. For approximate locations of Portable Camera Trailers see table below:

Portable Camera Trailers	
General Description	Quantity
West End of Bridge 02899 (Arkansas Side)	1
East End of Bridge 02899 (Mississippi Side)	1
Total	2

Note — stations/locations are approximate for bidding purposes.

Minor grade adjustments and temporary drainage appurtenances to be constructed by the Contractor to establish level placement. The Contractor shall install the Portable Camera Trailers no later than seven (7) days after the effective date of the Work Order.

Contractor will make all on-site access to Portable Camera Trailers, including camera root access, available to appropriate ARDOT staff to enable proper configuration and operation for the traveler information site IDriveArkansas. Contractor will always provide and maintain access to the portable camera trailers to appropriate ARDOT staff.

(b) ARDOT Responsibility. The ARDOT Public Information Office is responsible for obtaining and paying for a cellular data plan required for transmitting live images. ARDOT is responsible for providing a web-based interface for viewing and controlling live camera images.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PORTABLE CAMERA TRAILERS

(c) Relocations. The Contractor will coordinate at least two weeks in advance with ARDOT if/when a Portable Camera Trailer must be relocated to accommodate work in the work zone. If relocation is necessary, such relocation will be performed by the Contractor, including establishment of a new level placement site.

(d) Upon Completion. The Contractor will demobilize and relocate camera trailers to the nearest ARDOT facility in coordination with the Engineer. The Contractor will convey ownership of all Portable Camera Trailers to ARDOT once the contract is complete and cameras have been relocated to the nearest ARDOT facility as directed by the Engineer.

Materials.

(a) Trailer. The trailer shall be a 3,500-pound single axle trailer made of steel frame construction and powder coated, orange for visibility, to withstand humidity, rain, sleet, snow, ice, rust and salt. There shall be a 30-foot galvanized mast that rotates 360 degrees. Raising and lowering of the mast should be mechanical and easy to operate. There shall be four corner leveling jacks. There shall be a detachable hitch, to prevent trailer theft, sized for a two-inch ball.

(b) Control Box. The control box will house all electronics involved with control and power of the camera, including solar controller, DC midspan, wireless modem, and power bus/distribution bar. Control box to meet NEMA 3R requirements for outdoor protection. Powder coated, orange for visibility, steel, stainless steel or aluminum. Built-in, vandal-proof access lock with key. Conduit shall be run between the control box and camera mount with proper waterproofing.

(c) Communications. The communications requirements shall be as follows: Sierra Wireless Airlink MP70, no WiFi, LTE Advanced Pro with Band 14 and a FirstNet Ready — SKU 1104071. Sierra Wireless Airlink Antenna: 3-in-1 Dome — SKU 6001136.

(d) Battery Box and Batteries. Batteries are to be enclosed in an isolated box that is NEMA 3R compliant with conduit to the Control Box with proper weatherproofing. The Battery Box is to be powder coated, orange for visibility, steel, stainless steel, aluminum or plastic. Painted steel is not acceptable. The Battery Box is to include built-in, vandal-proof access lock with key. Batteries should be sealed, 6VDC, 115 min @ 75 amps — 225 AH @ 20 hours, arranged in series-parallel to produce 12VDC power. Typical operations have required 12–16 batteries.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PORTABLE CAMERA TRAILERS

(e) Solar Panels and Controller. There shall be four (4) 140W solar panels with mounts installed on the trailer for easy tilt and rotation for best positioning toward the sun. There shall be a 30 Amp, 12/25 VDC, PWM solar charge controller with low voltage disconnects. The Contractor is to provide typical controller model used by ARDOT of ProStar PS-30M. The controller must have 100% solid-state electronics with temperature compensated charging and an LED indicator to report battery status. The controller must be capable of handling charged sealed, gel or flooded batteries. The controller must include reverse polarity protection and surge/lightning protection.

(f) Video Camera. Each trailer will be equipped with two (2) cameras meeting the following specifications:

- Camera Model: AXIS P5655-E PTZ Network Camera
- Camera Mount: AXIS T91L61 Wall-and-Pole Mount
- Camera Power Supply: Microsemi PD-5501G L2-24VDC Midspan

Method of Measurement. Portable Camera Trailers furnished as provided above will be measured by the unit.

Basis of Payment. Portable Camera Trailers furnished and installed and measured as provided above will be paid for at the contract unit price bid per each for Portable Camera Trailer, which shall be full price for furnishing, installing, maintaining and moving from one location to another the Portable Camera Trailers; all materials, labor, equipment, tools, and incidentals necessary to perform minor grade adjustments and installation of temporary drainage; and removal and disposal of placement site materials.

Payment will be made under this item at the rate of 75% of the contract unit price bid at the time the Portable Camera Trailers are completely in place and accepted by the Engineer. The remaining 25% of the contract unit price bid will be paid upon relocation to the nearest ARDOT facility upon completion of all work under the Contract.

Payment will be made under:

Pay Item

Portable Camera Trailer

Pay Unit

Each

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

SHORING

DESCRIPTION: Work under this item shall consist of the design, construction, and removal of a shoring or bracing system to retain existing and new embankments and to maintain traffic during reconstruction of the West Abutment Backwall for Bridge No. 02899. Shoring may consist of sheet piling, anchored walls, or other bracing systems. The shoring system shall provide sufficient clearance for excavation and construction work and always ensure the safety of the traveling public and workers.

The bridge layout and “Details of West Abutment Backwall Repair” shows the general intent and location of the required shoring. Any other shoring used at the Contractor’s option will not be paid for directly but will be considered subsidiary to the various pay items. The Contractor shall notify the Engineer and the U.S. Army Corps of Engineers before any work associated with the west backwall replacement begins. The Contractor shall be responsible for notifying the U.S. Army Corps of Engineers of an anticipated begin work date and providing the required documents for approval. Refer to the plans and notes referencing the backwall replacement. The U.S. Army Corps of Engineers contact information is listed in the “Coordination of Work” Special Provision.

The Contractor shall provide the shoring plans with installation method/s, depth of penetration into the levee, and removal methods to the contract shown. The required submittal for their review and approval shall be submitted a minimum of 30 days prior to any work beginning with the backwall replacement. All correspondence with the U.S. Army Corps of Engineer will be copied to the Engineer, ARDOT Environmental Division – Kayti.ewing@ardot.gov, and Mr. Charles Ellis, ARDOT Bridge Division Head – Charles.ellis@ardot.gov.

WORK TO BE PERFORMED: Prior to construction of the shoring system, the Contractor shall submit the design and details of the system to the Engineer for informational and record purposes. Such submission shall include the design calculations, the kind and condition of materials to be used, working drawings showing all dimensions, and the procedure for installation of the system. The design and details submitted shall be prepared and/or approved by an Arkansas Registered Professional Engineer.

The Contractor shall construct the shoring in accordance with the details submitted to the Engineer for informational purposes. Unless otherwise permitted by the Engineer, all components of the shoring system shall be removed upon completion of their use and shall remain the property of the Contractor.

The Contractor shall be responsible for the adequacy of the shoring during the entire period of construction. The Contractor shall be responsible for any and all damages and/or claims, including injury or death, arising out of the construction and use of shoring.

The Contractor should be aware that the presence of previous shoring may exist in the area of the proposed work due to the 1988 widening project. Any required changes to the shoring system shall be brought to the attention of the Engineer prior to installation.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

SHORING

The Contractor shall exercise precautions to not do anything to compromise levee integrity. If sheet piling or another shoring system chosen by the Contractor is removed, grouting of any potential voids is required after removal.

The Contractor should schedule the replacement of the backwall when there is no anticipated high water. The Contractor is required to develop an Emergency Action Plan to protect the integrity of the levee in the event of high water for the U.S. Army Corp of Engineers to be included in the shoring plan submittal described above. An observed river stage or forecasted river stage of 48 feet on NOAA's river gauge "Mississippi River at Helena" (NWSLI: HEEA4, Reach ID: 14197803) shall trigger the Contractor's Emergency Action Plan. The river elevation trigger shall require the Contractor to stop excavation in the west backwall area and have a readily available approved material for backfill. The Contractor shall provide any additional reports requested by the U.S. Army Corp of Engineers in the event of levee overtopping or damage due to the backwall replacement.

METHOD OF MEASUREMENT: The design, construction, and removal of the shoring system herein described shall be measured on a lump sum basis for each site.

PAYMENT: Work completed, accepted, and measured as provided above will be paid for at the contract lump sum price bid for "Shoring (Site No. 1)". Such price shall be full compensation for the preparation of required submittals and necessary design details and drawings; for construction and subsequent removal of the shoring; and for all materials, labor, tools, equipment, and incidentals necessary to complete the work. The excavation and backfill necessary for installation of the required shoring will not be paid for directly but shall be considered subsidiary to the item "Shoring (Site No. 1)".

Payment will be made under:

Pay Item

Shoring (Site No. 1)

Pay Unit

Lump Sum

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

REQUIREMENTS OF U.S. COAST GUARD PERMIT

DESCRIPTION: The following requirements are for Bridge No. 02899 in Job 110812, Hwy. 49 Mississippi River Bridge Rehab. (S), that crosses the Lower Mississippi River from Helena-West Helena, Arkansas to Lula, Mississippi at river mile 661.6.

REQUIREMENTS: All construction operations in and over the navigable waterways and levees shall conform to the requirements or directions of the Engineer, U.S. Army Corps of Engineers – Memphis Division, U.S. Coast Guard – St. Louis District, and /or other authority having jurisdiction.

The Contractor shall submit a work plan with details of construction methods for work platforms, scaffolds, containment systems, etc. over the navigation channel to the U.S. Coast Guard at least 30 days prior to the commencement of the work in the affected area for an issuance of a Work Conditions letter.

Address correspondence to:

(dwb): USCG Heartland District
8th Coast Guard District Bridge Branch
1222 Spruce St.
St. Louis, MO 63103-2832

Attn: Eric Washburn, Bridge Administrator
Email: Eric.Washburn@uscg.mil

A copy of any correspondence to the U.S. Army Corp of Engineers or the U.S Coast Guard, shall be sent to ARDOT Bridge Division, Little Rock, Arkansas.

The U.S. Coast Guard shall be extended an invitation to attend the Preconstruction Conference for this project.

No direct payment will be made for this item. It shall be considered subsidiary to other items in the contract.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

Subsection 108.02(a) is hereby deleted and the following is substituted therefore:

108.02 Prosecution of Work.

(a) Preconstruction Conference. Before beginning the work specific to the project and unless waived by the Engineer, a preconstruction conference shall be held at a mutually agreed upon time and place. The Engineer will notify subcontractors, utility companies, and other interested parties of the time and place of the preconstruction conference. The Contractor shall submit the following to the Engineer before or at the preconstruction conference:

- A company safety plan and the name of the safety officer;
- An EEO/affirmative action plan and the name of the EEO officer;
- A list of key project personnel and their phone numbers;
- A list of proposed subcontractors;
- The names of Material Testers.

Subsection 108.02(b)(4) and the remainder of Subsection 108.02 is hereby deleted and the following is substituted therefore:

(c) Full Work Order.

(1) Calendar Day Contract. Unless the Contractor is otherwise advised in writing, the Work Order of a calendar day contract shall become effective on the fifteenth calendar day following the execution of the Contract. Should the effective date fall on a Saturday, Sunday, or legal holiday; Monday following a holiday on Sunday, or Friday preceding a holiday on Saturday, the effective date shall be the next work day. The assessment of contract time shall begin on the date the Contractor actually begins work or no later than as specified in the Special Provision "Flexible Beginning of Work - Calendar Day Contract".

Only work specified in SS 108-2 may begin before the assessment of contract time begins.

(2) Allocation of Department Resources. The Department allocates its resources to a contract based on the total time allowed in the Contract. However, should the Contractor propose an accelerated work schedule, the Department will provide the necessary resources to meet the demands of the accelerated work schedule. Utility and/or Right of Way (ROW) related delays are exempt from impact claims for the first ninety (90) days after the work order date.

(d) CPM Schedule.

(1) General. Prepare and submit to the Engineer a Critical Path Methodology (CPM) schedule in accordance with Section (j) "General Requirements of the Project Schedule" of this special provision utilizing scheduling best practices.

The schedule shall be used to plan, coordinate, and manage the work, whether the Contractor's personnel are performing the work or not. Copies of the complete baseline schedule, update schedules, and revised schedules shall be shared with all subcontractors, suppliers, and utility companies affected by the work.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

Float is a shared commodity and is not for the exclusive use or benefit of any party. It is available to all parties as needed until it is consumed.

The "Structure of the Project Schedule" document is located on the ARDOT website at <https://ardot.gov/divisions/construction/construction-information/> under CPM Schedule Information.

(e) Project Scheduling. Time is of the essence and the contract time requirement is a key factor for success to both the Department and the Contractor. All time limits stated in the Contract Documents are of essence to the Contract. The purpose of the Department requiring the project schedule shall be to:

- Ensure adequate planning during the prosecution and progress of the work in accordance with the allowable number of calendar days and all milestones identified by the Contract;
- Assure coordination of the efforts of the Contractor, Department, Utilities, and others that may be involved in the project;
- Assist the Contractor and Department in monitoring the progress of the work and evaluating proposed changes to the Contract;
- Assist the Department in administering the contract time requirements;
- Ensure that the project is planned for the entire project duration and completed within the contract time as bid.

The observance of the requirements herein is an essential part of the work to be performed under the Contract. No direct compensation will be allowed for fulfilling these requirements, as such work is considered subsidiary to the various bid items of the Contract.

(f) Personnel. The Contractor shall provide an individual, referred to hereafter as the Scheduler, to create and maintain the project schedule. The Scheduler shall be proficient in CPM development and analysis of resources, and shall be able to perform the required tasks using the specified software. The Scheduler shall be present, in person or via tele-conference at the discretion of the Engineer, at all CPM update meetings and made available for discussion or meetings when requested by the Engineer.

(g) Bid Schedule.

(1) General. The apparent low bidder shall provide an electronic ".xer" file, a PDF schedule report, and a bid schedule narrative to the Department's Program Management Division, via Doc Express, by 4:30 p.m. by the 5th calendar day following the opening of bids. Should the apparent low bidder fail to submit the bid schedule and the bid schedule narrative within the time allotted, the proposal will be rejected and the proposal guaranty will be returned to the bidder. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised and constructed under contract or otherwise, as the Commission may decide. The low bidder who failed to produce an acceptable bid schedule, bid schedule narrative, or both will not be permitted to bid on any subsequent advertisement of the project.

(2) The Department shall review and verify the constructability of the bid schedule prior to contract award. At a minimum, the bid schedule shall contain the following:

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Include external constraints (outside Contractors work, utilities, permitting, Short Term Activity Authorizations (STAA), ROW clearance, etc.). Use the dates provided in the respective Special Provisions.
- High-level activities summarized by the Work Type Code as set forth in the “Activity Codes/Work Type” section of the “Structure of the Project Schedule” document located on the ARDOT website shall be represented in the schedule for each stage.
- Full scope of work for the entire project duration (bid contract time) clearly reflecting the MOT (Staging) plan as reflected in the bid documents in accordance with the MOT (Staging) plan described in the bid documents in accordance with the Work Breakdown Structure (WBS) sections of the “Structure of the Project Schedule” document located on the ARDOT website to level 3 detail of the WBS.
- The bid schedule shall be a CPM logic driven schedule.
- Appropriate work calendars shall be developed and applied for the various activities in accordance with all calendar references under Section (j) “General Requirements of the Project Schedule” of this special provision. Calendars shall include specified holidays, Sundays, and include anticipated adverse weather days.

(3) Bid Schedule Narrative. A schedule narrative shall be provided with the Bid Schedule proposal, and shall include the following information:

- General description of the workflow and plan for completing the project.
- A Time-Line illustrating the MOT (Staging) plan including key milestones such as utility turnover dates, migrating bird netting, ROW clearance date, etc.
- The working days per week, the number of shifts per day, the number of hours per shift, the holidays to be observed, and a description of how the schedule will account for adverse weather days.

(4) Criteria for Acceptance of the Bid Schedule.

- The bid schedule narrative shall meet all criteria as shown in the “Bid Schedule Narrative” subsection of this special provision.
- High level activities shall be included for all applicable Work Type codes for the full scope of work.
- The bid schedule shall be organized by the MOT (Staging) plan described in the bid documents in accordance with the “WBS Structure” sections of the “Structure of the Project Schedule” document located on the ARDOT website to level 3 detail of the WBS.
- The bid schedule shall be a CPM logic driven schedule.
- The bid schedule shall contain appropriate work calendars reflecting holidays, Sundays, and a reasonable number of adverse weather days.
- The bid schedule shall indicate that the work can be reasonably assumed to be completed in the calendar days bid.

The bid schedule and bid schedule narrative submitted by the apparent low bidder will be reviewed by the Department to determine if the criteria noted in this Special Provision have been met. If it is determined by the Department that the submitted bid schedule, bid schedule narrative, or both do not meet the specified criteria, the bidder will be notified in writing, detailing the issues of concern and allowed the opportunity to submit a revised bid

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

schedule, bid schedule narrative, or both. The revised bid schedule, bid schedule narrative, or both must be submitted within two business days of notification. If the revised bid schedule, bid schedule narrative, or both are deemed unacceptable or not submitted within two business days of notification, just grounds exist for rejection of the proposal. In this case, the bidder will be notified that an acceptable bid schedule, bid schedule narrative, or both have not been submitted and will be provided an opportunity for administrative reconsideration. A request for administrative reconsideration must be submitted to the Chief Engineer within two business days of the Department's notification. As part of the administrative reconsideration, the bidder may provide corrections or arguments concerning the issue of whether the bid schedule and bid schedule narrative meet the specified criteria. The Chief Engineer will render a written decision on the reconsideration explaining the basis for the finding. If the Chief Engineer determines that a bid schedule and a bid schedule narrative are not produced that meet the specified criteria, or no administrative reconsideration is requested, the proposal will be rejected and the proposal guaranty will be returned to the bidder. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised and constructed under contract or otherwise, as the Commission may decide. The low bidder who failed to produce an acceptable bid schedule, bid schedule narrative, or both will not be permitted to bid on any subsequent advertisement of that project.

(h) Baseline Schedule.

(1) General. The Contractor shall provide the Baseline Schedule to the Engineer as soon as possible after notification of contract award. The Engineer will review the Baseline Schedule per Section (j) "General Requirements of the Project Schedule" of this special provision, and notify the Contractor of its acceptability. **The Contractor will not be allowed to start work until the Baseline Schedule has been approved by the Engineer. The contract time will start no later than that specified in the Special Provision "Flexible Beginning of Work - Calendar Day Contract" after the issuance of the work order. No time extension shall be considered for failure to submit an acceptable Baseline Schedule within the time period specified above.**

(2) Baseline Schedule Narrative. The schedule narrative shall not be considered notification of delays, requests for change orders, or other issues. The Contractor shall provide a schedule narrative with the Baseline Schedule including the following information and topics as laid out:

- General description of the workflow and plan for completing the project.
- A timeline illustrating the MOT (Staging) plan according to bid documents; including key milestones such as utility turnover dates, migratory bird netting, ROW clearance date, etc.
- A description of the longest path.
- Subcontractors, equipment (full and part time noted), monthly crew staffing plan.
- List of completion dates for all major milestones.
- The work days per week, the number of shifts per day, the number of hours per shift, and the holidays to be observed, and a description of how the schedule accounts for adverse weather days.
- Activities requiring coordination with the Department, utilities, other parties, etc. (external constraints).

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Attachment defining each crew completely, describing the equipment, including number and type, required to carry out the work. The number of crews is to be defined by the Contractor. It is expected that a sufficient number of crews will be developed to correspond to the Contractor's plan to complete the project within the time specified. At a minimum, please include a list containing a legend for all abbreviations/acronyms.

Baseline Schedule Joint Review, Revision, and Acceptance. Within fifteen (15) calendar days of receipt of the Contractor's proposed Baseline Schedule, the Engineer shall evaluate the schedule for compliance with this specification and notify the Contractor of the findings. If the Engineer requests a revision or justification, the Contractor shall provide a satisfactory revision or adequate justification to the satisfaction of the Engineer within five (5) calendar days. The Contractor will not be allowed to start work until the Baseline Schedule has been approved by the Engineer.

The contract time will start no later than that specified in the Special Provision "Flexible Beginning of work – Calendar Day Contract" after the issuance of the work order. The Baseline Schedule submitted for acceptance must be sequenced according to the MOT plan provided in the contract documents. If the Contractor submits a Baseline Schedule for acceptance that is based on a sequence of work not in the plans, it will be rejected by the Engineer.

The Engineer's review and acceptance of the Contractor's Baseline Schedule is for conformance to the requirements of the Contract documents only. Review and acceptance by the Engineer of the Contractor's project schedule does not relieve the Contractor of any of its responsibility for the project schedule, or of the Contractor's ability to meet interim milestone dates (if specified) and the contract completion date, nor does such review and acceptance expressly or by implication warrant, acknowledge or admit the reasonableness of the logic, durations, manpower or equipment loading of the Contractor's Baseline Schedule. In the event the Contractor fails to define any element of work, activity or logic and the Engineer review does not detect this omission or error, such omission or error, when discovered by the Contractor or Engineer, shall be corrected by the Contractor at the next schedule submittal and shall not affect the project completion date.

At a time agreeable to the Engineer, the Contractor shall conduct a **Baseline Schedule Presentation Meeting** within seven (7) calendar days after submitting the proposed Baseline Schedule. The purpose of this meeting is for the Contractor to present the Contractor's schedule. The following is a minimum to be covered at the joint review of the schedule:

- Work Breakdown Structure (WBS)
- Sequence of work - step through the schedule activity by activity
- Resources - to include crews and production rates used
- Longest path Review

(3) Criteria for Acceptance of Baseline Schedule. The Engineer will accept a schedule based on the following:

- Baseline Schedule Presentation review meeting.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Conformance with Section (j) "General Requirements of the Project Schedule" of this special provision and any other contract requirements.

The Engineer's acceptance of a schedule:

- Does not modify the Contract.
- Does not constitute endorsement or validation by the Engineer of the Contractor's activity logic, activity durations, or assumptions in creating the schedule.
- Does not guarantee that the project can be performed or completed as depicted in the schedule.
- Does not relieve the Contractor of its obligation or responsibility to submit complete and accurate information.

If the Contractor or Engineer discovers an error after the Engineer has accepted a schedule, the Contractor shall correct the error in the next schedule submission.

The Contractor will not be allowed to start work until the Baseline Schedule has been approved by the Engineer.

(i) Update Schedule.

(1) General. On a bi-weekly basis and in alignment with each pay estimate, the Contractor shall perform a complete update including the application of actual resource units. The bi-weekly schedule update shall be provided with each pay estimate. A .pdf schedule report shall be provided to the Engineer, showing each activity's original duration, remaining duration, percent complete, start date, finish date, material resource name, budgeted quantity, actual quantity, quantity to complete, and unit of measure as an attachment to the pay estimate. An electronic ".xer" backup file of the schedule shall be submitted to the Engineer. The Contractor's scheduler must attend each bi-weekly schedule update; either in person, via computer, or tele-conference as determined by the Engineer. The following reports shall be provided as determined by the Engineer; three (3) week look-ahead, critical activities (longest path), productivity/quantities, actual/planned.

The project schedule and narrative shall be updated and submitted in accordance with Section (j) "General Requirements of the Project Schedule" of this special provision every twenty-eight (28) days (every other bi-weekly update) to align with pay estimates. The project schedule shall be updated during a joint project schedule update meeting that will be attended by the appropriate Engineers and Contractor representatives. The Contractor's scheduler must attend the joint project update meeting; either in person, via computer, or tele-conference as determined by the Engineer. The joint project update meeting shall occur within no more than three (3) business days from the pay estimate date. All schedule submittals and time restrictions are required unless otherwise approved by the Engineer in writing. The schedule shall be submitted no later than close-of-business two (2) business days after the joint project schedule update meeting.

The Contractor shall meet with the Engineer to review and input into the project schedule the actual progress made until the data date of the schedule update. The review of progress will include dates for activities actually started and/or completed, and the duration percentage of work completed or remaining duration on each activity started and/or

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

completed. The percentage of work completed shall be calculated by using the quantity and production rate information.

(2) Assignment of Baseline Schedules. The following Baseline Schedules shall be assigned prior to submission of schedule updates. The submitted schedule “.xer” backup file shall contain the following assigned Baseline Schedules:

- Project Baseline - assign the approved Baseline Schedule.
- Primary Baseline - assign the approved update from the prior month
- Secondary Baseline - assign the approved update from 2 months prior

(3) Store Period Performance. The “Store Period Performance” function shall be performed every twenty-eight (28) days (every other bi-weekly update) to align with pay estimates and the full schedule, reports, and narrative submittal to lock in actual-this-period units to coincide with the joint project update meeting prior to submission of the schedule update for review and disposition.

Failure to attend the scheduled update meeting or submit the schedule update within the specified period may result in the stoppage of work until the Department receives the schedule update and future withholding of estimate payments until the specified evaluation time has elapsed and the Contractor receives approval from the Engineer.

(4) Update Schedule Narrative. The schedule narrative shall not be considered notification of delays, Requests for Changes Orders, or other issues. A schedule narrative shall be provided with each schedule update including the following information and topics as laid out:

- General description of status and what occurred during update period.
- Issues - known and potential
- Mitigation efforts associated with each issue
- General description of planned work during next update period
- Material quantities must align with estimate item codes and schedule resources.
- Schedule Related RFI's
- Schedule Related Change Orders and/or Proposals
- Attached default Claim Digger report
- Oracle Primavera schedule log report

(5) Update Schedule Joint Review, Revision and Acceptance. Within seven (7) calendar days of receipt of the Contractor's submitted Update Schedule, the Engineer shall evaluate the schedule for compliance with this specification, and notify the Contractor of the findings in writing. If the Engineer requests a revision or justification, the Contractor shall provide a satisfactory revision or adequate justification to the satisfaction of the Engineer within seven (7) calendar days. **Failure to provide revisions or justification within seven (7) calendar days may result in future withholding of estimate payments and/or the stoppage of work until a satisfactory response has been received, the specified evaluation time has elapsed, and the Contractor receives approval from Engineer.**

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

The update schedule submitted for acceptance must be sequenced according to the MOT plan provided in the contract documents. If the Contractor submits an update schedule for acceptance that is based on a sequence of work not previously approved by the Engineer, it will be rejected. Any MOT change of sequence must be submitted and approved through the change order process before inclusion in the Schedule.

The Engineer's review and acceptance of the Contractor's project schedule is for conformance to the requirements of the contract documents only. Review and acceptance by the Engineer of the Contractor's project schedule does not relieve the Contractor of any of its responsibility for the project schedule, or of the Contractor's ability to meet interim milestone dates (if specified) and the contract completion date, nor does such review and acceptance expressly or by implication warrant, acknowledge, or admit the reasonableness of the logic, durations, manpower, or equipment loading of the Contractor's project schedule. In the event the Contractor fails to define any element of work, activity, or logic and the Engineer review does not detect this omission or error, such omission or error, when discovered by the Contractor or Engineer, shall be corrected by the Contractor at the next schedule submittal and shall not affect the project completion date.

(j) General Requirements of the Project Schedule.

(1) Scheduling Requirements. The following requirements are the minimum for the project schedules submitted by the Contractor to be in compliance with the Contract Documents. The project schedule shall employ computerized CPM for the planning, scheduling, and reporting of the work as described in this specification. The project schedule shall be prepared using the Precedence Diagram Method. The Contractor shall create and maintain the project schedule using scheduling software compatible with Engineer supported scheduling software. The Project will use Oracle Primavera P6 v8 or newer mutually agreed upon version of Oracle Primavera, which shall mean that the Contractor provided electronic file version of the project schedule may be loaded or imported by the Department with no modifications, preparation, or adjustments.

All scheduling software settings within the scheduling/leveling dialog box shall remain 'default' unless otherwise approved by the Department. The Contractor shall use retained logic for calculating all project schedules. Out-of-sequence Work shall be itemized and described in the monthly schedule narrative and discussed at monthly project schedule update meetings.

The Schedule will be prepared showing construction to the full contract time.

The Contractor shall create and maintain a CPM project schedule showing the manner of prosecution of work that he intends to follow in order to complete the contract within the allotted time.

- The project schedule shall show the sequence and interdependence of activities required for complete performance of the work. At a minimum all pay items shall be accounted for in the activities in the schedule including all If and Where Directed Items showing the plan quantity being utilized. The Contractor shall be responsible for assuring all work sequences are logical and show a true and coordinated plan of the work.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

Each activity in the project schedule shall be described by:

- An activity ID (number) utilizing an alphanumeric designation system tied to the traffic control plans, as described in the “Activity ID Structure” section of the “Structure of the Project Schedule” document located on the ARDOT website and that is agreeable to the Engineer. At no time shall an activity ID be changed from one schedule version to another (i.e. from bid schedule to baseline schedule to update schedules and between monthly updates).
- Concise and unique description of the work represented by the activity name with no duplicate activity name within the project schedule as described in the “Activity Naming Convention” section of the “Structure of the Project Schedule” document located on the ARDOT website; and
- Activity durations in whole days with a maximum of twenty (20) calendar days. Longer durations may be used for non-construction activities (mobilization, submittal preparation, curing, etc.), and other activities mutually agreeable between the Engineer and Contractor.
- An activity duration shall be based on the quantity for the individual work activity divided by a production rate. Activities that have varying production rates may be required to be separated into multiple activities by the Engineer.
- A User Defined Field shall be utilized to assign production rates to their associated activities and resources. The User Defined Fields shall be developed and structured in accordance with the “User Defined Field” section of the “Structure of the Project Schedule” document located on the ARDOT website.

The activities shall be coded so that organized plots/layouts of the project schedule may be produced as described in the “Activity Codes” subsection of this special provision.

The activities shall be assigned to a WBS as described in the “WBS Structure” sections of the “Structure of the Project Schedule” document located on the ARDOT website.

Administrative activities and milestones shall be incorporated into the schedule and assigned to the ‘Admin/Milestones’ WBS level as follows:

- All milestones identified by the Contract shall be reflected as start milestones with a ‘start no earlier than’ constraint or finish milestones with a ‘finish no later than’ constraint.
- Project Start-Start Milestone for work prior to work order.
- (NTP/Work Order Start)-Start Milestone for work after work order.
- Stage Complete-Finish Milestone for each stage of the project (shall not be constrained unless necessary to reflect MOT (Staging) plan)
- Substantial Completion-Finish Milestone to follow all contracted work scope and punch-list activities required for beneficial use. A Project Level “Must Finish By” date shall be applied on Calendar Day and Fixed Completion Date contracts. Note that the project level “Must Finish By” constraint is as-of 12:01 am.
- Project Complete-Finish Milestone to follow all close-out activities after substantial completion.
- Contract Days-No Level of Effort activities are to be used with the exception of a Level of Effort activity used for tracking the planned, actual, and remaining contract days. Relationships to be Start-to-Start (SS) with NTP/Work Order-Start milestone and

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

Finish-to-Finish (FF) with Substantial Completion milestone. This activity will reflect total contract duration and track actual days charged against contract duration.

- Additional milestones used by the Contractor shall be approved by the Engineer.
- Constraints-only constraints associated with the WBS, phasing, staging, milestones, or project completion dates specified in the Contract are allowed. Any constraints to be utilized on the schedule other than the aforementioned dates must be authorized in advance by the Engineer.
- No lags shall be used on Finish-To-Start relationships and no negative lags shall be used at any time.
- No Start-to-Finish relationships shall be used at any time.
- No activity shall have only Start-to-Start successor relationship(s) or only Finish-to-Finish predecessor relationship(s).
- Critical path shall be determined by the longest path.
- No activity shall contain scope that represents multiple Contractors, trades, or types of work.
- The Contractor shall resource-load the project schedule by assigning every construction activity the appropriate material and equipment resources which align with the Contractor's project plan and directly correlate to and support the Estimate Item Codes (Schedule of Values).
- Only project calendars shall be used. No global calendars may be used. Separate calendars shall be developed and assigned to activities for various Work Types, as appropriate.
- Seasonal weather conditions shall be considered and included in the project schedule for all work influenced by temperature and/or precipitation. Seasonal weather conditions shall be determined by an assessment of average historical climatic conditions. Average historical weather data is available through the National Oceanic and Atmospheric Administration (NOAA), company historical records, or any additional reference the Contractors deems necessary to prepare an accurate schedule. These effects will be simulated through the use of work calendars for each major work type (i.e., earthwork, concrete paving, structures, asphalt, drainage, etc.) for all activities.
- The work calendars shall be updated each month to reflect the actual days worked.
- Total Float is the amount of time that an activity can be delayed from its early start date without delaying the project finish date. Free Float is the amount of time that an activity can be delayed without delaying the early start date of any successor activity. Float time in the project schedule is a shared commodity between the Department and the Contractor. Suppression or consumption of float shall not be allowed, including by use of extended activity durations, dummy activities, unspecified or unnecessary milestones, unnecessary logic ties, or preferential sequencing.

At a minimum, include the following work activities, as applicable:

- Work to be performed by the Contractor, subcontractors, and suppliers.
- Work to be performed by the Department and third parties.
- The project start date, scheduled completion dates, and other milestones required by the Contract, start or finish dates for phases, or site access or availability dates.
- Submittal review and approval activities when applicable, including time for the Department's approval as specified in the Contract.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Fabrication, delivery, installation, testing, and similar activities for materials, plants, and equipment.
- If and where directed items shall be included in the schedule as an activity showing the plan quantity being utilized.
- Sampling and testing periods.
- Settlement or surcharge periods.
- Cure periods.
- Utility notification and relocation identified in the Contract.
- Installation, erection, and removal identified in contract documents and similar activities related to temporary systems or structures.
- Required acceptance testing, inspections, or similar activities.
- Activities representing acquisition of any necessary permits to be obtained by the Contractor or acquisition of right of way when a delay of occupancy is included in the contract documents.
- Activities shall not be deleted from the schedule. If scope or activity no longer applies, close the activity using the following process:
 - Apply actual start and finish date.
 - Remove activity from current sequence string.
 - Add predecessor of Project start and successor of project complete.
 - Add negative resource quantity(s) so as to have a quantity sum of zero (0).
 - Add note on activity explaining the reason for closing the activity and add the word "CLOSED" to the activity description.
 - Ensure explanation is included in the monthly narrative.

(2) Resource Loading

All construction activities shall be resource loaded as follows:

- Labor resources assigned with associated crews.
- Material resources assigned with associated quantities and appropriate units of measure such as to allow for earned value, production analysis, and s-curves. All material quantities shall be carried on material resources in alignment with and equal to the estimate item code "schedule of value line items" bid/contract quantities.
- Major equipment shall be assigned as resources with associated hours.

(3) Store Period Performance. At the end of each update cycle, "Store Period Performance" shall be performed to lock in actual-this-period units prior to submission of the schedule update for review and disposition. This should occur every twenty-eight (28) days in conjunction with a pay estimate and the full schedule, reports, and narrative submittal.

(4) Earned Value Rules (Performance Measurement). All scheduling software settings within the Earned Value, User Preference Calculations, and User Preference Resource Analysis dialog boxes shall remain 'default' unless otherwise approved by the Department.

(5) Level of Schedule Detail/Submission Requirements. Each project schedule submittal shall include a ".xer" electronic backup file and three (3) plots in .pdf or other

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

format as determined by the Engineer with the activities logically grouped using the Project's WBS and then by Work Type activity code as set forth in the "WBS" and "Activity Codes" sections of the "Structure of the Project Schedule" document located on the ARDOT website and sorted by start date and total float:

- One bar chart plot showing the entire project schedule, with the longest path through the schedule readily discernible; and
- The second bar chart plot showing only the longest path;
- The third bar chart plot showing a 60-day Look-Ahead schedule, starting with the data date, containing no completed activities.

(6) Project Schedule Revisions. If the Contractor desires to make changes in the project schedule, the Contractor shall notify the Engineer in writing prior to making the revisions. The written notification shall include the reason for the proposed revision, what the revision is comprised of, and how the revision was incorporated into the schedule. In addition to the written notification of the revision, the Contractor shall include a ".xer" electronic backup file of the project schedule that includes the revision and one logically organized plot of the project schedule if requested by the Engineer.

The Department may request the submission of a revised schedule if any of the following circumstances occur:

- There is a delay (actual or projected) to the scheduled milestone or project completion dates.
- There is a difference between the actual sequence or durations of the work and the sequence or durations depicted in the last accepted schedule.
- The Department executes a contract revision that adds or deletes work, modifies the planned sequence of work, or modifies the means and methods of its performance.

The requirement to prepare a revised schedule is not a directive by the Department to accelerate the work.

Prepare and submit the revised schedule as soon as the need for a revised schedule is necessary, but no more than five (5) business days after the Department's request.

Within five (5) business days of receipt of the revised schedule, the Department will respond in writing either accepting the revised schedule or rejecting the revised schedule and identifying the reasons for rejection, or requesting more information. Within five (5) business days after the date of the Department's written response, address the reasons for rejection and resubmit the revised schedule or provide the information requested.

(7) Recovery Schedules. If the work is delayed such that the projected finish date of any completion deadline or contract milestone, in the current update schedule, is behind by twenty-eight (28) calendar days, then the Contractor shall provide a Recovery Schedule within seven (7) calendar days, including a recovery plan detailing how the delay will be recovered and the completion deadline(s) achieved, prior to submittal of its next monthly update schedule. The Recovery Schedule shall demonstrate the Contractor's plan to regain lost progress and achieve all completion deadlines per the Contract Documents.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

(8) Change Orders. Any and all change orders affecting schedule durations, sequencing, and/or material, or equipment quantities shall be incorporated into the schedule, whether additive or deductive.

A fragnet shall be developed for all potential change orders. The fragnet and Time Impact Analysis (TIA) shall be submitted for inclusion with the change order. Failure to submit a fragnet with the change order forfeits any recovery for an associated recoverable project delay at any future date.

Approved Change Orders shall be incorporated into the current schedule with the activity(s) clearly identified and reflected as to the change order number the items are associated with. Potential time extensions based on change orders will be analyzed based on the most recent approved schedule, impact to the longest path, and subsequent movement of the current project completion date in accordance with the Evaluation of Delays and Calculation of Time Extensions section of this special provision.

For each added Change Order activity, the activity ID shall have CO plus the change order number added to the end of the standard activity ID structure. The activity description shall have CO plus the change order number added to the beginning of the standard activity description structure. Leading zeros should be included as part of the three (3) digit change order number.

For Change Orders only affecting resource quantities (not requiring new activities), the changer order resources may be added to existing activities, as appropriate, in accordance with the change order scope.

- a. Change Order Resources. Resources shall be created and assigned to activities for each approved change order, whether the resource resides on an existing or new change order activity. Change order resources shall include the entire scope of the change order. The resource code shall have CO plus the change order number added to the end of the standard resource ID structure. The resource description shall contain CO plus the change order number. Any leading zeros should be included as part of the change order number. All resource and cost loading rules apply to change orders.

Subsection 108.06 is hereby deleted and the following is substituted therefore:

108.06 Determination of Time of Completion and Extension of Contract Time.

- (a) General.** The time bid by the Contractor for the completion of the work included in the Contract will be stated in the proposal and Contract, and will be known as the "Contract Time". The contract time will be specified as calendar days.

The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project according to the plans and specifications within the contract time. The Contractor shall advance the work so that the available time is appropriately utilized in order to complete the work within the contract time.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

Unless an emergency is declared, the Contractor shall not perform work that requires inspection on Sundays or legal holidays designated in Subsection 101.01(c) and the actual holiday if it falls on a Saturday or Sunday. If the Commission declares Friday following Thanksgiving Day as a Department recognized holiday, the Contractor shall not perform work that requires inspection. These days shall be charged in a Calendar Day contract.

No claim for an extension of time will be considered as a result of failure of the Engineer to furnish interpretations of the plans and specifications until 30 calendar days after receipt of such demand in writing as required by Subsection 105.01, and not then unless such request for an interpretation is clearly presented for understanding, reasonable and made in good faith.

The Engineer will determine the date upon which the Contract is substantially complete and time assessment will cease. In the event cleanup is necessary or items found at the final inspection are to be corrected, the Contractor shall complete this work in a timely manner or the Engineer will resume time charges.

- (b) Calendar Days.** When the contract time is specified in calendar days, time will be assessed for each calendar day in accordance with the Special Provision "Flexible Beginning of Work - Calendar Day Contract". A calendar day is defined under Subsection 101.01.

The Contractor shall take into consideration all normal conditions considered unfavorable to the progress of the work and place a sufficient work force and equipment on the project to ensure completion of the work with the contract time. Inaccessibility to a portion of the work due to utility conflict or utility work will be considered as an adverse condition for time exceeding that specified in the Contract for the utility adjustment.

Contract time will not be assessed during a full suspension of the work as ordered by the Engineer. Contract time will be assessed during a Partial Work Order period according to Subsection 108.02(b)(3). During a partial suspension of the work as ordered by the Engineer, the contract time will be assessed in direct proportion to the ratio of the money value of the items not suspended to the total contract amount.

- (c) Extensions to the Contract Time.** The Contractor shall immediately notify the Engineer of a delay once the Contractor becomes aware of the delay, not at the conclusion of the delay. The Contractor waives entitlement to a time extension or compensation for delay or costs incurred before the Contractor notified the Engineer of the delay.

Only Department responsible delays in activities that affect the milestone dates or the contract completion date, as determined by CPM analysis, will be considered for a time extension.

The Contractor's plea that the contract time was insufficient is not a valid reason for an extension of time. When the time as extended by the Department falls on a date that is a Sunday or holiday, the Engineer will extend the contract time to the next business day.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

The Department will evaluate the Contractor's documentation and analysis, and determine the time extension due, if any. The Department will not evaluate a request for an extension of the contract time or revise the contract time unless the Contractor notifies the Department in accordance with the contract documents and specifications.

The Engineer will evaluate delays and requests for extensions or revisions to phased or interim start or finish dates, or durations for portions of the project in the same manner as requests for an extension of the contract time for the project as a whole. Comply with the requirements of this subsection when seeking a time extension for phased or interim start or finish dates or durations.

In the event that the Department extends the contract time into a period of the year during which the working conditions are less favorable, the Department will consider a further extension of time based on the nature of the work the Contractor scheduled to perform during the less favorable period. Conversely, if the Department extends the contract time into a period of the year during which the working conditions are more favorable, the Department will consider reducing the contract time extension. If the Department reduces the work required to complete the project or relaxes phase or stage requirements, the Department may reduce the contract time.

(d) Evaluation of Delays and Calculation of Time Extensions. The Engineer will evaluate the Contractor's request for a time extension based on the Contractor's compliance with the following requirements:

- Base all evaluations of delay and all calculations of the appropriate time extensions due on the schedules submitted to and accepted by the Department and current at the time the delay occurred, not schedules created after the delay occurred.
- The delay is on the longest path when the delay occurred.
- The delay results in a scheduled milestone or project completion date that is later than the date required by the Contract.
- When using a CPM schedule, determine the duration of delays as follows:
 - Use time impact analysis (TIA) to identify and measure critical delays that have not yet occurred. Do not use this method to evaluate delays that have already occurred. In general terms, perform a TIA as follows:
 - Develop a "mini" schedule for the changed work. This schedule is known as a fragnet.
 - Identify the current accepted schedule and record the scheduled completion date on that schedule.
 - Insert the fragnet into the current schedule by properly linking the fragnet with the existing activities in the current accepted schedule.
 - Recalculate the current schedule with the fragnet inserted and record this scheduled completion date.
 - The difference in the calculated scheduled completion dates between the current schedule and the schedule calculated with a properly inserted and properly composed fragnet is the delay attributable to the changed work. The time extension due, if any, will be based on this delay.
 - Use a contemporaneous analysis when evaluating delays that have already occurred. In general terms, perform a contemporaneous analysis as follows:

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Identify the most recent accepted schedule with a data date before the start of the delay being evaluated.
- Identify each accepted schedule in effect during the delay and the schedule with a data date that immediately follows the conclusion of the delay.
- Identify the longest path each day from immediately before the start of the delay to the schedule immediately following the delay.
- Determine whether the delay falls on the longest path.
- If the delay does not fall on the longest path, then no project delay occurred and no time extension is due.
- If the delay falls on the longest path, then determine the number of days the longest path is delayed. The time extension due, if any, will be based on this delay.

(e) Administration of Time Extensions. For a Calendar Day project, the Department will provide a time extension by adding calendar days to the contract time.

(f) Excusable, Non-Compensable Delays. Excusable, non-compensable delays are unforeseeable and unavoidable delays that are not the Contractor's or the Department's fault or responsibility. The Contractor is entitled to a contract time extension but not entitled to compensation for delay costs associated with an excusable, non-compensable delay. The following are excusable, non-compensable delays:

- Delays due to floods, tornadoes, earthquakes, or other natural disasters that affect the project in regions which are declared as disaster areas by governing authorities.
- Delays due to utility or railroad work when the Contractor is required to alter operations due to conflicts with utility facilities not shown in the plans or railroads not shown in the plans.
- Utilities exceeding estimated completion dates noted in the contract that affect the longest path.
- The Contract requires the furnishing of critical materials and the Contractor experiences a delay in delivery because of Federal priorities for defense needs or because of nationwide shortages. Additional contract time may be allowed in an amount equal to the actual lost time resulting from such delay. To obtain additional contract time, the Contractor shall document and file with the Engineer all evidence pertaining to the original agreement with the material supplier or manufacturer. This evidence must indicate that delivery would be made at or before the time the materials would be needed in the normal sequence of construction operations for incorporation in the work.
- In the event that no prior agreement has been made for furnishing a critical material, and the Contractor is unable to locate a supplier or manufacturer that can deliver the material when needed, the Engineer shall be advised of this situation in writing, indicating the date that delivery will be made and the date of the original request for such material. In either of these situations, when work has progressed to the point that critical materials not delivered are delaying progress of the project, the Contractor may make a written request to the Engineer for additional contract time.
 - Delays due to civil disturbances or acts of war or terror.
 - Delays due to epidemics or quarantines.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Delays due to labor strikes that are beyond the control of the Contractor, subcontractors, or suppliers and are not caused by the improper acts or failures of the Contractor, subcontractor, or supplier.

(g) Excusable, Compensable Delays. Excusable, compensable delays are delays that are not the Contractor's fault or responsibility but are the Department's fault or responsibility. The Contractor is entitled to a contract time extension and to compensation for delay costs associated with an excusable, compensable delay that affects the longest path. The Department will determine compensation for an excusable, compensable delay. The following are excusable, compensable delays:

- Delays due to an Engineer-ordered suspension.
- Delays due to the Department's neglect.
- Delays due to subsection 104.02(b) "Significant Changes in the Character of Work" that directly delay the longest path. Compensation will be as allowed under subsection 104.02(b).
- Delays due to subsection 104.02(c) "Differing Site Conditions" that directly delay the longest path. Compensation will be as allowed under subsection 104.02(c).

(h) Non-Excusable Delays. Non-excusable delays are delays that are the Contractor's fault or responsibility or delays that the Contractor could have foreseen or avoided, and weather delays not covered by the events listed in the "Excusable, Non-Compensable Delays" subsection of this special provision. Delays due to the Contractor's, subcontractors', or suppliers' insolvency or performance are neither excusable, nor compensable. The Contractor is not entitled to a time extension or compensation for a non-excusable delay.

(i) Concurrent Delays. Concurrent delays are separate delays to critical activities occurring at the same time. When a non-excusable delay is concurrent with an excusable delay, the Contractor is not entitled to a time extension for the period the non-excusable delay is concurrent with the excusable delay. When a non-compensable delay is concurrent with a compensable delay, the Contractor is entitled to a contract time extension but not entitled to compensation for the period the non-compensable delay is concurrent with the compensable delay.

In addition to the requirements above, the following requirement is added utilizing the updated project schedule:

Project Status Spreadsheet. Within twenty-one (21) calendar days after the start of contract time, the Contractor shall provide the project status spreadsheet in the format shown in Attachment A of this item or as directed by the Engineer. The project status spreadsheet will summarize the monthly and cumulative status of the project, revenue, forecasted revenue, anticipated stockpiled material estimate requests, and approved change orders. The project status, revenue status, and forecasted revenue listed on the Project Status Spreadsheet shall be calculated based on the current updated schedule. The Project Status Spreadsheet shall be updated with each bi-weekly estimate and revised every time the current schedule is updated.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PROSECUTION AND PROGRESS WITH BID SCHEDULE

Failure to provide a Project Status Spreadsheet that the Engineer is able to accept may result in future estimate payments being withheld until an acceptable Project Status Spreadsheet is received and appropriate evaluation time has elapsed.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. 110812
PROSECUTION AND PROGRESS WITH BID SCHEDULE

Attachment A

Project Status Spreadsheet

Report Date	
Project No.	
Highway	
Contractor's Name	NAME
Notice-to-Proceed Date	
First Pay Period Date	
Estimated Completion Date	
Original Contract Value	
Total Approved Change Orders	\$ -
Total Contract Value (This Pay Period)	\$ -

Pay Period	TOTAL	10/00	1/14/00	1/28/00	2/11/00	2/25/00	HIDE	HIDE	HIDE	HIDE	HIDE	HIDE
Baseline Schedule % Complete	0.00%											
Actual Schedule % Complete	Projected Status (Time)	0.00%										
Current Projected % Complete	0.00%											
Baseline Pay Request	\$ -											
Actual Pay request	\$ -											
Current Projected Pay Request	\$ -											

CUMULATIVE	TOTAL	10/00	1/14/00	1/28/00	2/11/00	2/25/00	HIDE	HIDE	HIDE	HIDE	HIDE	HIDE
Schedule % Complete	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Projected/Actual % Complete	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Scheduled Baseline	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Projected/Actual \$	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Instructions:

1. Attachment A is due the first week of the month.
2. Update the Report date to the Last Day of the previous month.
3. Add all change orders to the change orders tab.
4. Update all actual periods with actual payments submitted and actual schedule % complete.
5. Projected information should be updated monthly with your current projections.
6. If there is an error in cell C14 it indicates total Actual + future periods Projected Revenues do not equal the Total Current Contract value.
7. If there is an error in C15, it indicates Actual Schedule % for prior periods + future periods Projected % Complete do not equal 100%.
8. Attachment A should be loaded into DocExpress as an excel workbook into the folder "CPM Schedule Contractor Submitted".

Definitions	
Report Date	This should be the last day of the month for the reporting period.
Schedule % Complete	Enter the estimated percent complete for each month based on the Baseline Schedule.
Actual % Complete (bi-monthly)	Use duration percent complete from your current schedule.
Current Projected % Complete	Enter your projected % complete for all future periods. For prior months, the values will be equal to Actual % complete. The sum of this line should be 100%.
Original Pay Request schedule	Once Baseline Schedule is approved, enter the monthly estimated pay request. This becomes your "Baseline Pay Request" and should not change over time. The sum of this should be the original contract value.
Actual Pay request	Enter the actual dollar amount shown on the bi-weekly pay request.
Current Projected Pay Request	Enter the projected bi-weekly pay requests. For prior months, the value will be equal to Actual pay requests. The sum of this line should be the Total Contract Value plus all change Orders.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 110812

PRIME CONTRACTOR PERFORMANCE EVALUATION

All projects with a contract bid amount of \$10 million or greater will be evaluated in accordance with the Prime Contractor Performance Report Manual (PCPRM) adopted by the Department on September 30, 2025.

The manual is located on the Construction Contractor Information page on the ARDOT.gov website.

The Engineer will evaluate the contractor using the metrics and at intervals identified in the PCPRM. The evaluation ratings will be used to provide constructive feedback and as a tool to identify areas for improvement. The contractor shall be given opportunity to review and comment on the evaluation as well as the opportunity to appeal the Engineer's rating.

No direct payment will be made for inclusion of the PCPRM in the contract.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Division 800 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 802.02(a), Cement, are hereby deleted and the following substituted therefor:

(a) Cement. Portland cement and blended cement shall be from sources listed on the QPL.

The total alkali content of portland, or blended cement expressed as $\text{Na}_2\text{O} + 0.658 \text{ K}_2\text{O}$, shall not exceed 0.60%. The total combined alkali content of cement and Class C fly ash shall not exceed 5 lb/yd³.

Changes in cement source shall require written approval. Cement from an approved source that produces erratic results in strength, setting time, or other performance characteristics shall not be used.

The fifth and sixth paragraph of **Subsection 802.02(b), Fine Aggregate**, is hereby deleted.

The fifth and sixth paragraph of **Subsection 802.02(c), Coarse Aggregate**, is hereby deleted.

Subsection 802.02(e), Admixtures, is hereby deleted and the following substituted therefor:

(e) Admixtures. Admixtures shall be from sources that are listed on the QPL. Admixtures will be reviewed and approved during the mix design submittal. Admixtures shall be compatible with each other, as advised by the manufacturer. The admixture dosage rate range as recommended by the manufacturer shall be used. Should the dosage rate for any admixture not yield desirable characteristics in concrete, the dosage of admixture used shall be based on test results obtained by trial batches.

Admixtures shall be added to the mixing water by means of a mechanical dispenser that will accurately meter the additive throughout the mix water cycle. The dispenser shall be constructed and connected so that the amount of admixture entering the mixing water can be readily determined.

Subsection 802.02(f), Fly Ash, is supplemented by the following:

Fly ash may replace up to 25% by weight of Portland or blended cement at a rate of one pound of fly ash for each pound of cement replaced. Fly ash shall not be substituted in high early strength mixtures. Fly ash used as a replacement shall be included in the total cementitious materials content and in the calculation of the water-to-cementitious materials ratio. Mixtures containing fly ash shall meet all applicable requirements for the specified class of concrete.

Subsection 802.02(g), Slag Cement, is supplemented by the following:

Slag cement may replace up to 25% by weight of Type I Portland cement at a rate of one pound of slag cement for each pound of cement replaced. Slag cement shall not replace blended cement and shall not be used as a replacement in high early strength or Seal concrete. Slag cement used as a replacement shall be included in the total cementitious materials content and in the calculation of the water-to-cementitious materials ratio. Mixtures containing slag cement shall meet all applicable requirements for the specified class of concrete.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Subsection 802.04, Classes of Concrete, is amended as follows:

Class B concrete is deleted.

Class DS and Class DS-1 concrete are added for drilled shafts. The class required for each drilled shaft shall be as shown in the plans.

Subsection 802.05, Mix Design, is deleted in its entirety and the following substituted therefor:

802.05 Mix Design.

(a) General. Concrete mixtures shall be designed and prepared by the Contractor and proportioned to provide the required workability, durability, and conformity to the material properties specified in this Section. Approval of a mix design does not relieve the Contractor of responsibility for meeting production and acceptance requirements.

Concrete mixtures shall be proportioned to provide the required workability and durability for each class of concrete using the absolute volume method.

The minimum cementitious content, maximum water-to-cementitious materials ratio, required air content range, and specified minimum compressive strength shall conform to the limits shown in Table 802-1, which summarizes the requirements for each class of concrete.

Workability shall be determined by slump or slump flow, as applicable to the concrete class, in accordance with the test methods in Subsection 802.06(a). The slump or slump flow range established on the approved mix design shall govern for production and process control unless otherwise specified in the Contract.

(b) Mix Design for Class A, S, S(AE), and Seal. Concrete mixtures for these classes may be proportioned using one of the following:

(1) Standard Gradation. Aggregates shall conform to the grading requirements in Table 802-3 when tested in accordance with AASHTO T 27.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Table 802-3
Standard Aggregate Gradation for Class A, S, S(AE)
and SEAL Concrete

Sieve	Coarse aggregate, percent passing	Fine aggregate, percent passing
1½ in.	100	—
1 in.	95–100	—
1/2 in.	25–60	—
3/8 in.	—	100
No. 4	0–10	95–100
No. 8	0–5	70–95
No. 16	—	45–85
No. 30	—	20–65
No. 50	—	5–30
No. 100	—	0–5

(2) Optimized Gradation. For Class S and S(AE) concrete, the Contractor may propose a Job Mix Formula (JMF) using a combined aggregate gradation in lieu of meeting the individual standard gradations in Table 802-3. The combined gradation shall be evaluated against the Department's Tarantula Curve workability zones shown in the Contract.

The combined gradation shall be determined and reported for the 1½-inch, 1-inch, 3/4-inch, 1/2-inch, 3/8-inch, No. 4, No. 8, No. 16, No. 30, No. 50, No. 100, and No. 200 sieves. The nominal maximum aggregate size shall not exceed 1½ inches when tested in accordance with AASHTO T 27. The JMF shall identify each aggregate source and stockpile, the proportion of each aggregate in the blend, and the target combined gradation.

The Department may approve a mixture that does not fully conform to a Tarantula Curve workability zone when equivalent or superior workability and stability are demonstrated through one or more of the following:

1. Optimized paste volume management or the use of approved viscosity-modifying admixtures to control segregation and bleeding.
2. Documented field performance of an essentially identical combined gradation produced from the same aggregate sources and nominal maximum aggregate size in comparable structural placements.
3. Satisfactory results on an approved workability or segregation resistance test, demonstrating correlation with finishing quality, formwork stability, and complete form filling for the intended structural element.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Any alternatives approved under this Subsection shall be incorporated into the Job Mix Formula (JMF) and shall govern production control and Acceptance testing.

(c) Mix Design for Drilled Shaft Concrete, Class DS and DS-1. Concrete for drilled shafts shall be proportioned to provide flowability suitable for placement by tremie or pump without mechanical vibration while resisting segregation, bleeding, and aggregate washout when placed under water or slurry.

Supplementary cementitious materials (SCMs), such as fly ash, slag cement, or other approved pozzolans, may be used as partial replacement for cement. The use of SCMs and appropriate chemical admixtures is recommended to improve workability, durability, stability, and thermal performance of drilled shaft concrete.

Coarse and fine aggregates shall conform to the gradation requirements of Table 802-4. For each mix design, the Contractor shall select and use only one of the coarse aggregate gradations shown in Table 802-4 for a given mix design. Fine aggregate shall constitute less than 50% by weight of the total aggregate.

For the purposes of Table 802-4, “Coarse Agg” refers to coarse aggregate conforming to AASHTO M 43.

Table 802-4
Gradation Requirements for Class DS and DS-1 Concrete

Sieve	Coarse Agg (M 43 No. 7) % Passing	Coarse Agg (M 43 No. 78) % Passing	Fine Agg % Passing
3/4 in.	100	100	—
1/2 in.	90–100	90–100	—
3/8 in.	40–70	40–75	100
No. 4	0–15	5–25	95–100
No. 8	0–5	0–10	70–95
No. 16	—	0–5	45–85
No. 30	—	—	20–65
No. 50	—	—	5–30
No. 100	—	—	0–5

(1) Trial Batches. Mix designs proposed by the Contractor for Class DS and DS-1 concrete shall be verified by trial batches prepared with the specific materials, including admixtures, intended for use on the project. Each trial batch shall consist of at least 3 cubic yards and shall be produced at the plant.

Trial batching shall be performed in the presence of a Department representative unless otherwise approved.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

A mix design may be approved for compressive strength when at least three trial batch cylinders meet or exceed the minimum required strength at an age from 3 through 56 days. Early-age strength results used for mix design approval shall not modify the specified Acceptance age for production concrete. Approval based on early-age strength does not relieve the Contractor of responsibility for meeting strength requirements at the specified Acceptance age.

Trial batches for drilled shaft concrete shall demonstrate compliance with the properties specified in Table 802-5 and with the compressive strength requirements specified in Table 802-1.

Trial batches shall be sampled and tested in accordance with the test methods shown in Subsection 802.06(a). Trial batch documentation shall include the certified laboratory, certified tester, material sources, batch proportions, test results, and any adjustments made during the trial batch.

Table 802-5
Class DS and DS-1 Mix Design Properties

Property	Test method	Requirement
Initial slump flow	AASHTO T 347	18–26 in.
Slump flow retention	ARDOT TM 801	Pass
Static segregation, column technique	ASTM C1610	10% maximum
Visual Stability Index	AASHTO T 351	1 maximum

Slump flow retention testing shall be performed for each trial batch. Additional slump flow retention tests shall be performed for each incremental increase of 20 °F above the ambient temperature at which the initial trial batch is tested. Testing shall simulate the highest anticipated ambient temperatures expected during concrete production and placement.

The concrete mixture shall maintain a minimum slump flow of 12 inches for the anticipated placement time identified in the approved Drilled Shaft Work Plan, plus an additional 1 hour, without visual evidence of segregation exceeding the specified limits.

Concrete mixes that do not maintain acceptable slump flow characteristics under the simulated temperature conditions shall not be approved for Drilled Shaft construction.

(d) Mix Design Submittals and Approval. Concrete shall be produced only from mix designs that have been submitted and approved by the Department in accordance with this Section. At least 15 business days prior to the start of concrete production, the Contractor shall submit all applicable test results, material certifications, and concrete mix design data to the Department for review, using the Department’s Concrete Mix Design Submittal Form.

Mix designs will be reviewed for conformity with the requirements of this Section. When approved, the Department will assign an official Mix Design Identification Number. Approved mix designs are not project-specific and may be used on multiple projects, subject to compliance

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

with the requirements of the Contract. Prior to production, the Contractor shall designate the approved mix design to be used on the project and obtain authorization for its use. Concrete shall not be produced using a mix design that has not received written approval from the Department and authorization for use on the project. Concrete produced using an unapproved or unauthorized mix design will be subject to rejection.

All admixtures proposed for use in production shall be included in the mix design submittal. Any change in materials, sources, or proportions shall require a revised submittal and written approval by the Department prior to use.

Approved mix designs shall remain on file with the Department and may be referenced for use on other projects, subject to continued compliance requirements.

The Contractor shall submit proposed slump or slump flow ranges as part of the mix design submittal. Allowable tolerances shall be established during the Department's review and approval of the mix design.

Early-age compressive strength results used to support mix design approval shall not replace Acceptance testing at the specified acceptance age unless otherwise specified in the Contract.

The existing **Table 802-1** is deleted and the following substituted therefor:

Table 802-1
Structural Concrete Class Requirements

Characteristic	A	DS	DS-1	S	S(AE)	Seal
Minimum cement content, lb per cubic yard						
Standard gradation	470	—	—	564	564	—
Optimized gradation	—	—	—	517	517	—
Drilled shaft mixture	—	658	658	—	—	—
Seal mixture	—	—	—	—	—	517
Minimum compressive strength, f'_c , at 56 days, psi	3,000	3,500	5,000	3,500	4,000	2,100
Maximum water-to-cementitious materials ratio, w/cm	0.49	0.44	0.44	0.49	0.44	0.58
Air content, percent	—	—	—	—	4–8	—

The gradation and mixture types shown apply only to the indicated classes. Class S or S(AE) concrete used in prestressed concrete members shall have a minimum compressive strength of 5,000 psi at 56 days unless otherwise shown in the plans. Its maximum aggregate size shall be 1 inch.

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Subsection 802.06(a), Quality Control by the Contractor, is supplemented by the following:

The Contractor shall submit individual aggregate gradation results and, for a mixture using optimized gradation, the combined aggregate gradation calculated from those results. The initial gradation tests shall be completed and submitted to the Engineer before production of each class of concrete. During production, each aggregate stockpile shall be tested at the minimum frequency specified in this Subsection: one test per 500 cubic yards of concrete produced, with a minimum of one set of tests per bridge structure.

For concrete using standard gradation, individual aggregates shall conform to the applicable grading requirements of Table 802-3. For concrete using optimized gradation, the combined aggregate shall conform to the approved Job Mix Formula (JMF) within the limits of Table 802-6 and remain within the applicable Tarantula Curve workability zone shown in the Contract, except for a departure expressly approved as part of the JMF. Compliance with the JMF tolerances does not waive an applicable Tarantula Curve limit.

Concrete for Class DS and Class DS-1 shall conform to the gradation requirements of Table 802-5.

If a gradation test indicates noncompliance with an applicable individual aggregate limit, approved JMF tolerance, or Tarantula Curve limit, production of the affected mixture shall cease. The Contractor shall correct or replace the affected aggregate, perform the required testing, and submit passing results to the Engineer before production resumes.

Table 802-6
Percent Variation from Job Mix Formula (JMF)

Sieve size	Allowable variation in percent passing
No. 4 and larger	±5 percentage points
No. 8 through No. 30	±4 percentage points
No. 50	±3 percentage points
No. 100	±2 percentage points
No. 200, combined aggregate	3.0% maximum passing

If gradation, slump, slump flow, VSI, or air content measurements fall outside the specified tolerances, the Contractor shall immediately adjust the mixture and increase process control as necessary to regain compliance. If the Contractor fails to make timely adjustments, or if observable nonconforming concrete characteristics occur (including segregation, excessive bleeding, inadequate consolidation, or loss of workability), operations shall be suspended until corrective actions are implemented and compliance is demonstrated to the satisfaction of the Engineer.

In **Subsection 802.06(a), Quality Control by the Contractor**, the list beginning “Test procedures shall be:” and its accompanying footnotes are deleted and the following substituted therefor:

ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Test procedures shall be:

Property	Test method
Coarse and fine aggregate gradation	AASHTO T 27 ⁽¹⁾
Aggregate moisture content	AASHTO T 255
Concrete air content	AASHTO T 152
Concrete slump	AASHTO T 119
Concrete slump flow, when applicable	AASHTO T 347
Making and curing concrete test specimens in the field	AASHTO R 100
Concrete compressive strength	AASHTO T 22 ⁽²⁾

(1) A minimum of one test per aggregate stockpile per 500 cubic yards of concrete produced is required. A minimum of one set of aggregate gradation tests per bridge structure is required.

(2) A minimum of two cylinders shall be made and tested for each required strength test. The test result shall be the average of the two cylinders.

Subsection 802.06(a), Quality Control by the Contractor, is further supplemented by the following:

Air Content Monitoring for Class C Fly Ash. When Class C fly ash is used as a partial replacement for cement and its source uses powdered activated carbon to comply with EPA mercury emission requirements, the Contractor shall increase the frequency of quality control air content testing. At least one test shall be performed at the beginning of placement and thereafter at intervals not exceeding 20 cubic yards.

This increased frequency is for quality control and does not change the acceptance sampling and testing requirements of Subsection 802.06(b). The Engineer may require more frequent quality control testing when successive air content results differ by more than 1.5 percentage points or otherwise indicate instability of the air-void system.

Arkansas Department of Transportation
Schedule of Items

State Job No.: 110812

Date Estimated: 6/24/2026

Job Name: HWY. 49 MISSISSIPPI RIVER BRIDGE REHAB. (S)

Date Revised: 10/8/2026

Federal Aid Project: NHPP-PRTT-HIPBIP-0054(31)

Line Number	Item Code and Description	Estimated Quantity	Unit Bid Price	Price Extension
Section 01 - PROPOSAL ITEMS				
0001	202 - REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT	32.000 SQYD		
0002	202 - REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS	2.000 EACH		
0003	202 - REMOVAL AND DISPOSAL OF GUARDRAIL	1,604.000 LF		
0004	202 - REMOVAL AND DISPOSAL OF EXISTING CONDUIT AND CABLING	1.000 L.S.		
0005	202 - REMOVAL AND DISPOSAL OF EXISTING ITS EQUIPMENT	1.000 L.S.		
0006	202 - REMOVAL AND DISPOSAL OF EXISTING NAVIGATION LIGHTING SYSTEM	1.000 L.S.		
0007	202 - REMOVAL AND DISPOSAL OF EXISTING OBSTRUCTION LIGHTING SYSTEM	1.000 L.S.		
0008	SPSS210 - UNCLASSIFIED EXCAVATION	25.000 CUYD		
0009	SP&210 - COMPACTED EMBANKMENT	16.000 CUYD		
0010	SP&215 - TRENCHING AND SHOULDER PREPARATION	5.000 STA		
0011	SPSS303 - AGGREGATE BASE COURSE (CLASS 7)	83.000 TON		
0012	SPSS309 - PORTLAND CEMENT CONCRETE BASE (10" UNIFORM THICKNESS)	117.000 SQYD		
0013	SS&401 - TACK COAT	513.000 GAL		
0014	SPSS407 - MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	538.000 TON		
0015	SPSS407 - ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2") (MINIMUM BID \$120.00)	34.000 TON		
0016	SP&412 - COLD MILLING ASPHALT PAVEMENT	4,930.000 SQYD		
0017	SPSS414 - ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	5.000 TON		
0018	SPSS415 - ACHM PATCHING OF EXISTING ROADWAY	25.000 TON		
0019	SPSS504 - APPROACH SLABS	94.800 CUYD		
0020	SPSS504 - APPROACH GUTTERS	18.840 CUYD		

Arkansas Department of Transportation
Schedule of Items

State Job No.: 110812

Date Estimated: 6/24/2026

Job Name: HWY. 49 MISSISSIPPI RIVER BRIDGE REHAB. (S)

Date Revised: 10/8/2026

Federal Aid Project: NHPP-PRTT-HIPBIP-0054(31)

Line Number	Item Code and Description	Estimated Quantity	Unit Bid Price	Price Extension
0021	SPSS507 - PORTLAND CEMENT CONCRETE PAVEMENT PATCHING (9" UNIFORM THICKNESS)	32.000 SQYD		
0023	SP&602 - FURNISHING FIELD OFFICE	1.000 EACH		
0024	SPSS603 - MAINTENANCE OF TRAFFIC	1.000 L.S.		
0025	SP&603 - TRAFFIC CONTROL SUPERVISOR	1.000 L.S.		
0026	SS&604 - SIGNS	612.000 SQFT		
0027	SPSS604 - CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	4.000 EACH		
0028	SS&604 - BARRICADES	80.000 LF		
0029	SS&604 - TRAFFIC DRUMS	31.000 EACH		
0030	SS&604 - FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	5,266.000 LF		
0031	SS&604 - RELOCATING PRECAST CONCRETE BARRIER (MAX. BID 25% OF ITEM NUMBER 0030)	8,466.000 LF		
0032	604 - CONSTRUCTION PAVEMENT MARKINGS	25,297.000 LF		
0033	604 - REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	8,822.000 LF		
0034	604 - REMOVAL OF PERMANENT PAVEMENT MARKINGS	800.000 LF		
0035	SS&604 - VERTICAL PANELS	158.000 EACH		
0036	SP - MOTORIST ASSISTANCE PATROL	1.000 L.S.		
0037	SP - WRECKER SERVICE	1.000 L.S.		
0038	SP - PORTABLE CAMERA TRAILER	2.000 EACH		
0039	SP - DEVICE RELOCATION	4.000 EACH		
0040	SP - FURNISH AND INSTALL VARIABLE MESSAGE SIGN	4.000 EACH		
0041	SP - VMSS MOBILIZATION	1.000 L.S.		
0042	SP - VMSS OPERATION	36.000 MNTH		
0043	SPSS604 - WARNING SIGN ASSEMBLY WITH FLASHING BEACONS	6.000 EACH		
0044	SPSS604 - FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER (TYPE SPECIAL)	240.000 LF		
0045	SPSS604 - RELOCATING PRECAST CONCRETE BARRIER (TYPE SPECIAL)	240.000 LF		
0046	SS&617 - GUARDRAIL (TYPE A)	1,450.000 LF		

Arkansas Department of Transportation
Schedule of Items

State Job No.: 110812

Date Estimated: 6/24/2026

Job Name: HWY. 49 MISSISSIPPI RIVER BRIDGE REHAB. (S)

Date Revised: 10/8/2026

Federal Aid Project: NHPP-PRTT-HIPBIP-0054(31)

Line Number	Item Code and Description	Estimated Quantity	Unit Bid Price	Price Extension
0047	SS&617 - GUARDRAIL TERMINAL (TYPE 2)	2.000 EACH		
0048	SS&617 - THRIE BEAM GUARDRAIL TERMINAL	2.000 EACH		
0049	620 - LIME	1.000 TON		
0050	620 - SEEDING	0.500 ACRE		
0051	SS&620 - MULCH COVER	1.000 ACRE		
0052	620 - WATER	61.200 MGAL		
0053	621 - TEMPORARY SEEDING	0.500 ACRE		
0054	621 - SEDIMENT REMOVAL AND DISPOSAL	12.000 CUYD		
0055	621 - ROCK DITCH CHECKS	18.000 CUYD		
0056	SS&621 - FILTER SOCK (12")	1,584.000 LF		
0057	621 - WATTLE (20")	54.000 LF		
0058	623 - SECOND SEEDING APPLICATION	0.500 ACRE		
0059	SP - EQUIPMENT CABINET, TYPE B	3.000 EACH		
0060	SP - PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	156.000 WEEK		
0061	SP - ETHERNET SWITCH, T100 HARDENED (8- PORT)	7.000 EACH		
0062	SP - E-NET CABLE (EXTERIOR CAT 6)	1,340.000 LF		
0063	SP - CELLULAR MODEM	7.000 EACH		
0064	SP - TRAFFIC TIMER UNIT - COUNTDOWN	156.000 WEEK		
0065	SP - ROAD WEATHER INFORMATION SYSTEM	2.000 EACH		
0066	SP - PTZ CAMERA SYSTEM	16.000 EACH		
0067	SP - ELECTRICAL CONDUCTORS IN CONDUIT (3C/8, A.W.G., E.G.C.)	8,260.000 LF		
0068	SP&709 - GALVANIZED STEEL CONDUIT (2")	8,260.000 LF		
0069	719 - THERMOPLASTIC PAVEMENT MARKING WHITE (6")	13,015.000 LF		
0070	719 - THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	12,282.000 LF		
0071	719 - THERMOPLASTIC PAVEMENT MARKING (WORDS)	2.000 EACH		
0072	719 - THERMOPLASTIC PAVEMENT MARKING (ARROWS)	4.000 EACH		
0073	721 - RAISED PAVEMENT MARKERS (TYPE II)	98.000 EACH		
0074	SP - BRIDGE POST MOUNTED SIGN SUPPORT	2.000 EACH		

Arkansas Department of Transportation
Schedule of Items

State Job No.: 110812

Date Estimated: 6/24/2026

Job Name: HWY. 49 MISSISSIPPI RIVER BRIDGE REHAB. (S)

Date Revised: 10/8/2026

Federal Aid Project: NHPP-PRTT-HIPBIP-0054(31)

Line Number	Item Code and Description	Estimated Quantity	Unit Bid Price	Price Extension
0075	SS&725 - GUIDE SIGN-ROADSIDE MOUNTED (DIRECT APPLIED LEGEND)	215.000 SQFT		
0076	SP - BARRIER WALL DELINEATOR	2,080.000 EACH		
0077	SS&731 - TEMPORARY IMPACT ATTENUATION BARRIER	8.000 EACH		
0078	SS&731 - TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	16.000 EACH		
0079	SS&731 - TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)	64.000 EACH		
0080	SP - TEMPORARY FALSEWORK (SITE NO. 1)	1.000 L.S.		
0081	SP - BRIDGE JACKING (SITE NO. 1)	1.000 L.S.		
0082	SPSS802 - CLASS S CONCRETE-BRIDGE	11.800 CUYD		
0083	SPSS802 - CLASS S(AE) CONCRETE-BRIDGE	2.500 CUYD		
0084	SP - LIGHTWEIGHT AGGREGATE CONCRETE (AE)	2,552.200 CUYD		
0085	SP&803 - CLASS 2 PROTECTIVE SURFACE TREATMENT	2,309.800 SQYD		
0086	SPSS804 - REINFORCING STEEL-ROADWAY (GRADE 60)	12,536.000 LB		
0087	SPSS804 - LCCR REINFORCING STEEL-BRIDGE (GRADE 100)	413,880.000 LB		
0088	SS&804 - EPOXY COATED REINFORCING STEEL (GRADE 60)	115,180.000 LB		
0089	SPSS807 - STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 36)	33,630.000 LB		
0090	SPSS807 - STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	3,720.000 LB		
0091	SPSS807 - STRUCTURAL STEEL IN TRUSS SPANS (A709, GR. 36)	267,350.000 LB		
0092	SPSS807 - STRUCTURAL STEEL IN TRUSS SPANS (A709, GR. 50W)	3,870.000 LB		
0093	SP - REPAIR TYPE A: FLOOR BEAM TOP FLANGE	1.000 EACH		
0094	SP - REPAIR TYPE B: FLOOR BEAM BOTTOM FLANGE	11.000 EACH		
0095	SP - REPAIR TYPE C: FLOOR BEAM WEB	10.000 EACH		
0096	SP - REPAIR TYPE D: FLOOR BEAM STIFFENER	48.000 EACH		

Arkansas Department of Transportation
Schedule of Items

State Job No.: 110812

Date Estimated: 6/24/2026

Job Name: HWY. 49 MISSISSIPPI RIVER BRIDGE REHAB. (S)

Date Revised: 10/8/2026

Federal Aid Project: NHPP-PRTT-HIPBIP-0054(31)

Line Number	Item Code and Description	Estimated Quantity	Unit Bid Price	Price Extension
0097	SP - REPAIR TYPE E: STRINGER PIN AND HANGER	9.000 EACH		
0098	SP - REPAIR TYPE F: RIVET REPLACEMENTS	550.000 EACH		
0099	SP - REPAIR TYPE G: STRINGER CONNECTION ANGLE REPLACEMENT	2.000 EACH		
0100	SP - REPAIR TYPE H: CROSS BEAM REPLACEMENT	51.000 EACH		
0101	SP - CRACK ARREST HOLE	1.000 EACH		
0102	SS&808 - ELASTOMERIC BEARINGS	5,722.000 CUIN		
0103	SP - PREFORMED SILICONE JOINT	596.000 LF		
0104	SP&820 - CLEANING AND PAINTING EXISTING STRUCTURAL STEEL (TYPE II)	6,484.000 TON		
0105	SP&820 - DISPOSAL OF HAZARDOUS WASTE (SITE NO. 1)	1.000 L.S.		
0106	821 - MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO.02899)	1.000 L.S.		
0107	SP - SHORING (SITE NO. 1)	1.000 L.S.		
0108	SP - SHORING TYPE 1: MAIN TRUSS SPANS FLOOR BEAM	1.000 L.S.		
0109	SP - SHORING TYPE 2: MAIN TRUSS SPANS WIND LOCK	1.000 L.S.		
0110	SP - SHORING TYPE 3: MAIN TRUSS SPANS STRINGER	1.000 L.S.		
0111	SP - SHORING TYPE 4: APPROACH SPANS FLOOR BEAM	1.000 L.S.		
0112	SP - SHORING TYPE 5: APPROACH SPANS WIND LOCK	1.000 L.S.		
0113	SP - BRIDGE DECK REPAIR FOR POLYMER OVERLAYS	2,923.900 SQFT		
0114	SP - POLYMER OVERLAY	16,167.000 SQYD		
0115	SP - NAVIGATION LIGHTING SYSTEM	1.000 L.S.		
0116	SP - ITS ELECTRICAL JUNCTION BOX, METALLIC (24" X 24" X 8")	22.000 EACH		
0117	SP - OBSTRUCTION LIGHTING SYSTEM	1.000 L.S.		
0118	SP - RADIO INTERCONNECT, BROADBAND, SHORT RANGE	13.000 EACH		
0119	SP - TERMINAL SERVER	1.000 EACH		

Arkansas Department of Transportation
Schedule of Items

State Job No.: 110812

Date Estimated: 6/24/2026

Job Name: HWY. 49 MISSISSIPPI RIVER BRIDGE REHAB. (S)

Date Revised: 10/8/2026

Federal Aid Project: NHPP-PRTT-HIPBIP-0054(31)

Line Number	Item Code and Description	Estimated Quantity	Unit Bid Price	Price Extension
0120	SP - VIDEO MANAGEMENT SYSTEM INTEGRATION	1.000 L.S.		
Section 01 Total:				
Subtotal:				
0022	601 - MOBILIZATION (UNIT BID AMOUNT MAY NOT EXCEED 5% OF SUBTOTAL)	1.000 L.S.		
Bid Total:				

This job requires A+C method bidding. Bidder must show total number of Calendar Days to substantially complete the specified site use work (C).

_____ Days X \$10,000/Day = \$_____ (C)