

**SECTION 905 -- PROPOSAL (CONTINUED)**

I (We) hereby certify by digital signature and electronic submission via Bid Express of the Section 905 proposal below, that all certifications, disclosures and affidavits incorporated herein are deemed to be duly executed in the aggregate, fully enforceable and binding upon delivery of the bid proposal. I (We) further acknowledge that this certification shall not extend to the bid bond or alternate security which must be separately executed for the benefit of the Commission. This signature does not cure deficiencies in any required certifications, disclosures and/or affidavits. I (We) also acknowledge the right of the Commission to require full and final execution on any certification, disclosure or affidavit contained in the proposal at the Commission's election upon award. Failure to so execute at the Commission's request within the time allowed in the Standard Specifications for execution of all contract documents will result in forfeiture of the bid bond or alternate security.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO. <u>1</u>	DATED <u>11/5/2021</u>	ADDENDUM NO. _____	DATED _____
ADDENDUM NO. <u>2</u>	DATED <u>11/10/2021</u>	ADDENDUM NO. _____	DATED _____
ADDENDUM NO. <u>3</u>	DATED <u>11/18/2021</u>	ADDENDUM NO. _____	DATED _____

Number	Description
1	Revised/Added Plan Sheet No.2, 29-39, 6052, 6055-6056, 6352-6353, 6358-6360, 6362, 6364-6366, and 6419.
2	Revised Table of Contents; Added Notice To Bidders 3694; Amendment EBSx Download Required.
3	Revised Table of Contents; Added Notice To Bidder Nos. 2783 & 2812 ; Revised Notice to Bidder Nos. 3692 & 3694; Added NTB No. 3695; Added Special Provision 907-641-2; Special Provision 907-707-3 replaces SP 907-707-2; Revised Bid Items; Revised Progress Schedule; Amendment EBSx Download Required.

TOTAL ADDENDA: 3  
(Must agree with total addenda issued prior to opening of bids)

Respectfully Submitted,

DATE \_\_\_\_\_

\_\_\_\_\_  
Contractor

BY \_\_\_\_\_  
Signature

TITLE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

PHONE \_\_\_\_\_

FAX \_\_\_\_\_

E-MAIL \_\_\_\_\_

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of \_\_\_\_\_ and the names, titles and business addresses of the executives are as follows:

\_\_\_\_\_  
President Address

\_\_\_\_\_  
Secretary Address

\_\_\_\_\_  
Treasurer Address

The following is my (our) itemized proposal.

NH-0007-01(094)/ 108204301000 & NH-9039-00(001)/ 108204302000

Alcorn County(ies)

Revised 01/26/2016

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11/18/2021 03:20 PM

## MISSISSIPPI DEPARTMENT OF TRANSPORTATION

**SECTION 904 - NOTICE TO BIDDERS NO. 2783**

**CODE: (IS)**

**DATE: 05/25/2021**

**SUBJECT: ITS General Requirements**

For this Notice to Bidders, the “Engineer” shall mean the Project Engineer and/or their designee(s) throughout the rest of this NTB, unless stated otherwise.

### Submittals

All submittals covered under this section shall be made electronically to the Project Engineer and to the ITS Engineer, shall clearly state the project name and project number, and should be in as few separate submittals as possible.

All products selected for use on this project shall be in compliance with 2 CFR 200.216, in addition to all other contract requirements as outlined throughout the specifications, special provisions and plans. No telecommunication and video surveillance equipment or services shall be manufactured by the following companies: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities.

Product Data. Manufacturers’ product data including specifications/cut-sheets, design guides, installation manuals, operating manuals, and maintenance/service manuals shall be submitted by the Contractor for each component of the ITS system, including but not limited to cabinets, controllers, sensors, conduit, pull boxes, hardware, and all other parts of the system selected for installation.

The complete information for the original product data submittal shall be contained in as few submittals as possible and be in an organized fashion.

The product data submittal shall be accompanied by a specification checklist. At a minimum, this checklist shall clearly state the following:

- 1) The project name and project number
- 2) The date of the submittal
- 3) The pay item number and description
- 4) The part and/or model number, matching the cut-sheet
- 5) The manufacturer
- 6) A Certification Statement that the referenced product is not manufactured by any of the following: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities. (as per 2 CFR 200.216)
- 7) Every material requirement as stated in in this Notice to Bidders and as outlined elsewhere within this contract.

- 8) A statement of whether the product complies with the requirements set forth in the specifications, special provisions, plans and NTB. If product is not compliant, an explanation of non-compliance shall be provided.

All subsections of a particular section may be omitted if the section heading is included, is indicated to be not applicable, and that it is evident that all subsections being omitted are also not applicable.

It shall be the responsibility of the Contractor to guarantee the accuracy of the checklist.

Other Submittals. The following submittals shall be required:

- 1) Shop Drawings
- 2) Cabinet wiring diagrams with system labeling schedule.
- 3) Site wiring/connection drawings.
- 4) Rack diagrams showing rack mounted equipment.
- 5) All documentation as described in the Project Testing Plan Requirements section below.
- 6) Project Record Drawings:
  - a. The purpose of Project Record Drawings is to provide factual information regarding all aspects of the Work, to enable future service, modifications, and additions to the Work.
  - b. Project Record Drawings are an important element of this Work. Contractor shall accurately maintain Project Record Drawings throughout the course of this project.
  - c. Project Record Drawings shall include documentation of all Work, including the conduit locations, pull box locations, equipment locations, foundation details, setup parameters and wiring and block diagrams.
  - d. Project Record Drawings shall accurately show the physical placement of the following:
    - i. Cabinets, sensors, pull boxes, and other materials installed at each site.
    - ii. Conduit runs and splicing information.
  - e. Project Record Drawings shall show the physical placement of each system component installed during the project at each site. Where the plan details do not depict actual field conditions, the Contractor shall amend the construction plan as required.
- 7) Upon completion of Work, and prior to Final Acceptance, the Contractor shall prepare and submit the final record set of Project Record Drawings. This set shall reflect the installed Work.
- 8) Closeout Submittals - A set of Project Record Drawings shall be provided to the Project Engineer and ITS Engineer for any items that changed or were not previously submitted, including:
  - a. Project Record Drawings
  - b. Product Data
  - c. Installation Manuals
  - d. Operating Manuals
  - e. Maintenance/Service Manuals

As-Built Plans. The Contractor shall provide GPS locations of all pull boxes, splices,

termination equipment cabinets, ITS field locations and all pole locations. The Contractor shall record and submit the sequential footage markers from the fiber optic trunk and drop cables for each GPS location. The Contractor shall provide scanned PDF files of all plan sheets with pen and ink markups. The Contractor shall provide a site location inventory of ITS devices to include manufacturer model, serial numbers, MAC addresses, and IP addresses (as applicable) for all installed devices. All documentation will be due to the Department a minimum of thirty (30) calendar days after the installation.

**Additional Quality Assurance Measures**

The project shall be constructed in such a manner as to comply with environmental regulations and erosion control as specified in the plans and elsewhere in MDOT standard specifications.

At the completion of the Work, the site shall be cleaned, restored, grassed and otherwise stabilized to a condition consistent with conditions before work began. This work shall be paid for under other items of work.

All disturbed signs, guardrail, markers, fencing, and other roadway appurtenances shall be restored. Disturbed roadway appurtenances that require complete removal and replacement will be identified within the contract and will have separate pay items and quantities set forth for such work.

The Contractor shall clean-up debris caused by Contractor's activities on a daily basis as the work progresses. This work shall be paid for under other items of work.

All work-related accidents shall be reported immediately to the Project Engineer or his/her representative.

Maintenance and Technical Support. The supplier must provide and have a parts support system capable of providing parts for the length of the warranty period.

**Project Testing Plan Requirements**

The Contractor shall conduct a Project Testing Plan as required below in addition to all other project testing and acceptance procedures required elsewhere in the specifications and Plans. Some specifications contain details regarding the testing for individual device types or attributes, but this section outlines the overall testing plans for the entire project as a whole. The Project Testing Plan shall include a series of tests on all project materials occurring at various stages in the project. All costs associated with the Project Testing Plan shall be absorbed in contract pay items; no separate payment will be made for any testing.

General Requirements. The Contractor is responsible for planning, coordinating, conducting and documenting all aspects of the Project Testing Plan as detailed below and providing all required equipment for the tests. The Engineer reserves the right to attend and observe all tests.

Each test shall be an individual and separate event for each type of test and for each type of equipment as defined elsewhere within this NTB. The Contractor shall follow the testing sequence as described in this NTB and shall perform the required tests on all applicable

devices and infrastructure.

Test procedures shall be submitted and approved for each test as part of the project submittals programs. Test procedures shall include every action necessary to fully demonstrate that the material under test is clearly and definitively in full compliance with all project requirements. Test procedure actions shall cross-reference to the specifications or Plans requirement that is the subject of the test action. Test procedure actions shall cross-reference the applicable sections of the final approved Project Submittal Compliance Form and the submittal materials for the subject of the test action. Test procedures shall contain test setup and block/wiring diagrams showing all materials being tested and all test and measurement equipment, with calibration documentation, and shall contain documentation regarding the equipment configurations and programming. Test procedures shall include checkoff blanks for each project requirement included in that test and shall include forms for the documentation of all measured test results.

No testing shall be scheduled until approval of all project submittals for all materials covered under a given test and approval of the test procedures for the given test has been granted.

Unless otherwise required herein, the Contractor shall request in writing the Engineer's approval for each test occurrence a minimum of 14 days prior to the requested test date. Test requests shall include the test to be performed and the material to be tested. The Engineer reserves the right to reschedule tests if needed.

For any series of tests on different installations of a given material (e.g., different sections of cable), the Contractor shall request in writing the Engineer's approval for the first test occurrence of the series a minimum of 14 days prior to the requested test date, regardless of the notification requirements for subsequent test occurrences.

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

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

The Contractor shall provide test results documentation in electronic format and printed format (3 copies). Electronic formats shall be provided in both PDF and Microsoft Excel or other approved application. Printed copies shall be bound and organized by test, equipment type, and individual unit.

- Two sets are for the Traffic Engineering ITS Department
- One set is for the Engineer

All test results shall be provided in English units of measure.

All test results deemed by the Engineer to be unsatisfactorily completed shall be repeated by the Contractor, following all test requirements as defined elsewhere in this NTB and contract specifications. This shall include a request in writing for the Engineer's approval for the repeated test a minimum of 14 days prior to the requested test date, unless this requirement is waived by the Engineer. In the written request for each 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. Any revisions to the test procedures for a repeated test occurrence shall meet all requirements for the original test procedures, including review and approval by the Engineer.

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

It is possible for the Contractor to schedule multiple test dates and revise the actual test being performed on a particular day if; 1) the Engineer approves of the change, 2) all test scheduling requirements above have still been met for the actual test to be performed on the date, and 3) there is not an unreasonable change of location, time, duration, or requirement of the Engineer.

Factory Acceptance Test (FAT). FATs shall be conducted at the Manufacturer or Contractor's facility or at a facility acceptable to all parties prior to shipping from the factory. The goal of the FAT is to verify that the equipment meets the requirements of the specifications. All equipment to be utilized for this project shall be subject to tests that demonstrate the suitability of the design and manufacturing procedures and compliance with the contract requirements, unless an exception for a specific equipment item is granted by the Engineer. The tests shall be performed on production units identified to be delivered under this Contract. As a minimum, a FAT is required for each of the following project materials:

- Dynamic Message Signs

The FAT testing procedures and results for specifically identified materials shall demonstrate that all testing requirements as outlined within the contract (standard specifications, plans, special provisions, and notice to bidders) are met, including, but not limited to: functional/system performance requirements, electrical requirements, data transmission/communication requirements, safety/password requirements, environmental requirements, and interface requirements with other components of the project system.

The Engineer reserves the right to waive FATs which are deemed to be unnecessary and reserves the right to witness all FATs that are determined to be critical to the project. At the Engineer's discretion, the Engineer may be in attendance at the FAT for any units tested. The FAT for the first three (3) units shall be conducted during the same time period and shall be completed before additional units are produced.

The Engineer shall be notified a minimum of 45 calendar days in advance of such tests. Salary and travel expenses of the Engineer and his/her representatives will be the responsibility of the Department. In case of equipment or other failures that make a retest necessary, travel expenses associated with retests for the Engineer and his/her representatives shall be the responsibility of



the Contractor. The travel expenses shall include all costs associated with having a two-person Engineer review team on site, including but not limited to airfare, automobile rental, lodging, and per diem. These costs, excluding airfare, shall not exceed \$500.00 per representative, per day. These costs shall be deducted from the payments due or charged to the withholding account of the Contractor when the project is terminated.

The vendor must complete the FAT on all remaining units on their own and submit documentation to the Engineer that the FATs were completed. The Engineer reserves the right to randomly attend those FAT tests.

No equipment for which a FAT is required shall be shipped to the project site without successful completion of factory acceptance testing as approved by the Engineer and the Engineer's approval to ship.

Bench Test Components (BTC). The Contractor shall perform a complete BTC on the lesser of the full contract quantity of units of equipment and materials or the number of units required as specified in this subsection below. The quantity listed in the subsection below is a "minimum" quantity and the Engineer reserves the right to require testing of additional quantities if the initial testing is not deemed adequate. The Contractor shall provide the testing location and facility, which shall be in Mississippi and within a 25-mile radius of the project limits. The test location must be approved by the Engineer as part of the BTC test procedure submittal.

The BTC shall demonstrate that all equipment and materials are in full compliance with all project requirements and works "out of the box" by visual inspection, setup and operation "on the bench", functional testing of the component including manufacturer's recommended startup diagnostics, and testing prior to any field installation of that equipment or material. Test results documentation shall be provided for each equipment item and material in the full contract quantity; test results documentation shall include the manufacturer's serial number and the project location ID for each item.

As a minimum, a BTC is required for each of the following project materials for quantities as shown.

- Closed Circuit Television Equipment, 4 PTZ units & 6 fixed units
- Video Detection System (Type 1), 4 units
- Dynamic Message Sign, 2 complete units of each type
- Travel Time Signs, 2 complete units
- Network Switches Type A, 4 units
- Network Switches Type B & F, 2 units each
- Network Switches, Type C, D, & E, 1 unit each
- ITS Radar Vehicle Detection Sensors, 6 units
- Highway Advisory Radios, 2 units
- Radio Interconnect System, 4 units of each type
- Bluetooth Detection System, 6 units
- DSRC devices, 6 units
- Roadway Weather Information System, 2 complete units

- Traveler Information Video Kiosk, 2 complete units
- Smart Work Zone System
  - Portable CCTV station, 2 complete units
  - Non-Intrusive Vehicle Detection Devices / Portable Traffic Sensors, 4 complete units
  - Highway Advisory Radio, 2 complete units
  - Portable Changeable Message Signs, 2 complete units
  - Portable Traffic Signal, 2 complete units
- Off-the-shelf and Vendor Software, all necessary
- Equipment Cabinet (Type A), 2 cabinets
- Equipment Cabinet (Type B), 4 cabinets
- Equipment Cabinet (Type C), 2 cabinets

Pre-Installation Tests (PIT). The Contractor shall perform Pre-Installation Tests (PIT) on all device quantities that are not included in the BTC. The Contractor shall provide the testing location and facility, which shall be within a 25-mile radius of the project limits or as approved by the Engineer. The test location must be approved by the Engineer as part of the PIT test procedure submittal. The PIT shall be a shortened version of the BTC to ensure the equipment will power up, operate, and was not damaged during shipment. The Engineer reserves the right to attend any PIT as desired; however, the contractor shall submit documentation of the PITs whether the Engineer is present or not. In addition to these requirements, see the DMS, TTS, and Fiber Optic Cable Special Provisions for more details.

Stand Alone Site Tests (SAT). The Contractor shall perform a complete SAT on all equipment and materials associated with the field device site, including but not limited to electrical service, conduit, pull boxes, communication links infrastructure (fiber, leased copper, wireless), cable, poles, camera lowering devices, device communication cables, cabinet apparatus, etc. The goal of the SAT is to verify that the equipment has been properly installed and commissioned according to the manufacturer requirements. A SAT shall be conducted at every field device site including communications hubs. A SAT shall be conducted for a fully installed and completed control center in the TMC as described in the TMC modification NTB. A SAT shall be conducted for all fiber optic infrastructure.

The SAT shall demonstrate that all equipment and materials are in full compliance with all project requirements, are fully functional as installed, and are in their final configuration. As part of this demonstration, SATs shall include but are not limited to the following:

- A visual inspection of the cabinet and all construction elements at the site to ensure they are compliant with the Specifications and have no physical damage or deformities.
- The inspection of the cabinet at each site shall include the functional test of all cabinet equipment, including circuit breaker, receptacles, fan and thermostat, lights, and door switches.
- Verify that manufacturer documentation for each device is present.
- A measurement of the DC power supply shall be made at the cabinet when it is operating under full load.
- Verify that all equipment has proper power, surge protector, and grounding connections.

- Inspect the integrity of all cable connections and terminations and verify that the cables are connected and terminated as specified in the Plans.

The SATs for each site type shall include but are not limited to the following:

- *CCTV Stand Alone Site Test:* Shall be conducted at the CCTV Cabinet and shall demonstrate the complete operation of the CCTV, Network Switch, and the link(s) to any devices that are connected to the Power Supply in the CCTV Cabinet. The SAT shall include a 5-minute recording of each PTZ and Fixed camera showing the field of view and video quality. Two copies of the recording shall be provided to the Engineer on USB flash drives. The recording will start at the preset default position(s) and will demonstrate the full zoom capabilities of the cameras, as well as the full range of the pan and tilt functions of PTZ cameras. This recording shall be in a format playable with Windows Media Player or pre-approved by the Engineer.
- *Video Vehicle Detection Stand Alone Site Test:* Shall be conducted at the cabinet and shall demonstrate the complete operation of all equipment that vehicles are being properly detected, and that appropriate data is being relayed to the correct devices. See Video Vehicle Detection Special Provision for more details.
- *ITS Communications HUT Stand Alone Site Test:* Shall be conducted at the HUT and shall demonstrate the complete operation of all equipment inside the HUT including Network Switches. This also includes visual inspection of the Site elements associated with the HUT.
- *ITS Termination Cabinet Stand Alone Site Test:* Shall be conducted at the termination cabinet and shall demonstrate the complete operation of all equipment inside the cabinet including Network Switches. This also includes visual inspection of the Site elements associated with the termination cabinet.
- *Radio Interconnect System Stand Alone Site Test:* Shall be conducted from the cabinets at both ends of the communications link (even if one end consists of existing equipment) and shall demonstrate that the radios, the antennas, the entire link, the Network Switch, and the transmission of video and/or data are fully operational. See Radio Interconnect Special Provision for more details.
- *Highway Advisory Radio Site Test:* Shall be conducted at the HAR cabinet, antenna, and advisory signs and shall demonstrate complete operation of recordings, transmissions, and remote flashing beacon unit(s). See HAR Special Provision for more details.
- *Fiber Optic Cable Stand Alone Site Test:* Shall be conducted at each Cabinet and at each HUB and shall include both power meter tests and OTDR tests. See Fiber Optic Special Provision for more details.
- *Conduit Detection Wire Stand Alone Site Test:* Shall be conducted at each pull box and shall demonstrate that a continuous run of conduit detection wire was installed between pull boxes, vaults, cabinets, and structures as required.
- *ITS Radar Vehicle Detection Stand Alone Site Test:* Shall be conducted at the IRVD Cabinet and shall demonstrate the complete operation, proper configuration, and verification of detection for each lane of traffic or zone of the IRVD unit(s).
- *BDS Stand Alone Site Test:* Shall be conducted at the Device Cabinet and shall demonstrate the complete operation and proper configuration of the unit(s), verify network connection to the BDS through ping and telnet sessions from a remote PC, and confirm that the system

is fully functional by detecting Bluetooth devices at a sample rate approved by the Engineer.

- *RWIS Stand Alone Site Test:* Shall be conducted at the RWIS Cabinet and shall demonstrate the complete operation and proper configuration of the RWIS and shall verify that the remote flashing beacon unit(s) on the warning signs are activated properly as specified and will de-activate automatically without renewal at preset intervals.
- *SWZ Stand Alone Site Test:* Shall be conducted at each device at its initial location and shall demonstrate the complete operation and proper configuration of the device as described in the Smart Work Zone Special Provision and NTB. At any subsequent locations, at a minimum, a document verifying that the device is configured for the new location shall be submitted to the Engineer.
- *Kiosk Stand Alone Site Test:* Shall be conducted at the device, verify all required video layouts and displays, demonstrate all required software features, and demonstrate the complete operation of the device and Network Switch. Refer to the Traveler Information Video Kiosk specification for more details.

*DMS & TTS Stand Alone Site Test:* Shall be conducted at the Device Cabinet, verify that all pixels are operational, verify that the sign can be controlled locally through both the serial and Ethernet ports, and demonstrate the complete operation of the device and Network Switch. The signs shall be delivered with and tested using default fonts and sizes that are provided by the MDOT ATMS drivers.

The Contractor shall request in writing the Engineer's approval for each test occurrence a minimum of 14 days prior to the requested test date. The Contractor shall arrange, at no additional expense to the State, the attendance of a qualified technical representative of the equipment manufacturer to attend each test until a minimum of two (2) sites of that type are approved.

Sub-System Test (SST). The Contractor shall perform an SST on each DMS and TTS to verify and document that all remote TTS and DMS functions and alarms are operational from the TMC.

An SST is required for at least ten percent (10%) of each of the following devices being placed for the project, taken by a random sampling: BDS, Network Switch, IRVD, HAR, Radio, CCTV, Video Vehicle Detection, and RWIS including beacons. The SST will require the Contractor to demonstrate and document that all functions and alarms are operational from the TMC.

An SST is required for each Traveler Information Kiosk in the project and will require the Contractor to demonstrate and document the features demonstrated in the Kiosk SAT using remote access from the TMC.

An SST is required for each Smart Work Zone device in the project and will require the Contractor to demonstrate and document the connection between the device and the central data/video collection site. Once a Smart Work Zone device has been verified to be properly configured, working, and communicating at its current location, the device can be utilized without further testing. The Conditional System Acceptance Test, Burn-in period, Final Inspection, or Final System Acceptance is not required for a device being solely utilized as part of the temporary Smart Work Zone System. Devices moved to a new location do require verification that they are still

working as intended in the new location.

The Contractor shall coordinate the SST to be performed with the Project Engineer or designee present. The Contractor shall provide an SST plan to the Project Engineer for review and approval a minimum of two weeks in advance of tests being performed.

Conditional System Acceptance Test. The Contractor shall perform a complete conditional system acceptance test on all equipment and materials in the project. The Contractor shall not request the conditional system acceptance test until the SATs have been satisfactorily completed, all as-built documentation has been submitted and approved, and all other project work has been completed to the satisfaction of the Engineer. Prior to a Conditional System Acceptance Test, the Contractor shall provide advance notice of and written test results documenting that the Contractor has performed a dry-run of the conditional system acceptance test. The Engineer reserves the right to attend a dry-run test session.

The Contractor shall coordinate the CSAT with the Engineer. The Contractor shall provide a CSAT plan to the Engineer and be approved a minimum of fourteen (14) calendar days in advance of tests being performed. The CSAT plan shall be inclusive of steps and procedures to be performed and scheduled times to perform test procedures.

The Contractor shall test all project systems simultaneously from the State TMC in a manner equivalent to the normal day-to-day operation of the system. The Conditional System Acceptance Test shall demonstrate that all equipment and materials in the network are in full compliance with all project requirements and fully functional as installed and in final configuration, communicating with and being controlled through the control center at the State TMC. If pre-processing systems (e.g., edge computing) or post-processing systems (e.g., video image processing and analytics, detection in one device triggering an alarm or event in another device, etc.) are present, these shall be tested, verified, and documented as working as intended during the CSAT. Edge computing is where data-handling activities, such as analysis and event-triggering, takes place near the physical location that the data is collected.

The Engineer reserves the right to require, at no additional expense to the State, the attendance of a qualified technical representative of the equipment and/or software manufacturers to attend any given Conditional System Acceptance Test.

Upon completion and full approval of the Conditional System Acceptance Test for all equipment in all phases, Conditional System Acceptance will be given and the Burn-in Period will begin.

Burn-In Period. Following the Engineer's written notice of successful completion of the Conditional System Acceptance Test, the entire newly installed system must operate successfully for a 3-month burn-in period. The Contractor shall be responsible for the full maintenance of the newly installed equipment during the burn-in period. This maintenance includes all troubleshooting and repairs as well as providing preventive maintenance that meets the equipment manufacturer's recommendations. However, no separate payment will be made during the burn-in period. Successful completion of the burn-in period will occur at the end of six (6) complete months of operation without a system failure attributable to hardware, software or communications

components. Each system failure during the burn-in period will require an additional month of successful operation prior to being eligible for Final Acceptance (i.e., if the initial burn-in period is three (3) months and there are two (2) system failures during this time, the burn-in period would be increased to five (5) months).

**Burn-In General Requirements:**

- Determination of a system failure shall be at the sole discretion of the Engineer.
- System failure is defined as a condition under which the system is unable to function as a whole or in significant part to provide the services as designed. While a single component failure will not constitute a system failure, chronic failure of that component or component type may be sufficient to be considered a system failure. Chronic failure of a component or component type is defined as three (3) or more failures for the same component during the burn-in period.
- Components are defined as contract items or major material elements in a contract item. For electrical and electronic contract items, components are defined as the complete assembly of materials that makes up the contract item.
- Specifically exempted as system failures are failures caused by accident, acts of God, or other external forces that are beyond the control of the Contractor. However, failure of the contractor to respond to the repair request for that failure within 24 hours may be considered a system failure.
- The Department will advise the Contractor in writing when it considers that a system failure has occurred or chronic failure exists.
- If multiple system and/or chronic failures continue to occur throughout the burn-in period due to a single component type, the Contractor may be required to replace all units of that component type with a different model or manufacturer.
- The Contractor shall document all failures and subsequent diagnosis and repair. The repair documentation shall include as a minimum:
  - Description of the problem
  - Troubleshooting and diagnosis steps
  - Repairs made
  - List of all equipment and materials changed including serial numbers.
  - Update of the equipment inventory where needed.
  - The Contractor shall provide the repair documentation to the Engineer within two (2) days of completing the repair; failure to provide acceptable documentation as required shall be reason to not approve the repair as complete. The Engineer will provide acceptance or rejection of the repair and documentation within seven (7) days of receiving the repair documentation.
  - The Engineer reserves the right to require, at no additional expense to the State, the presence of a qualified technical representative of the equipment and/or software manufacturers as related to the diagnosis and/or repair of any system failure.
- During the burn-in period, the Contractor shall perform incidental work such as touching up, cleaning of exposed surfaces, leveling and repair of sites, sodding/grassing and other maintenance work as may be deemed necessary by the Engineer to ensure the effectiveness and neat appearance of the work sites.
- During the burn-in period, the Engineer shall maintain a “burn-in period punch list” that

contains required Contractor actions but that the Engineer does not define as a system failure. Each burn-in period punch list action item shall be completed by the Contractor to the Engineer's satisfaction within seven (7) days of Contractor notification of the action item.

- During the burn-in period, the Contractor is required to meet the following response times once notified there is a problem. A response is defined as being on-site to begin diagnosing the problem.
  - Monday thru Friday: The Contractor shall respond no later than 9:00 a.m. the following morning after being notified.
  - Weekends: If the Contractor is notified on Friday afternoon or during the weekend, the Contractor shall respond by 9:00 a.m. on Monday morning.
- During the burn-in period, the Contractor shall provide all labor, materials, equipment and replacement parts to completely maintain, troubleshoot and repair all items installed under this contract. No separate payment will be made for any labor, materials, equipment, or replacement parts needed during the burn-in period.
- The overall burn-in period will be considered complete upon the successful completion of the burn-in time periods, the Engineer's acceptance of all repairs and repair documentation, completion of all burn-in period punch list actions, and a final inspection as described below.

Contract time will not cease during the burn-in period(s). Contract time for the burn-in period was considered when determining the original contract time.

Final Inspection. Upon successful completion of the burn-in period, the entire project shall be eligible for Final Inspection. The Final Inspection will be conducted provided the burn-in period has demonstrated the entire system is operating successfully. The Final Inspection shall include but is not limited to:

1. monitoring of all system functions at the State TMC to demonstrate the overall system is operational
2. a field visit to each site to ensure all field components are in their correct final configuration
3. verification that all burn-in punch list items have been completed
4. verification that all final cleanup requirements have been completed
5. approval of final as-built documentation

Prior to conducting the Final Inspection, the burn-in period shall demonstrate that all requirements defined in the specifications have been met, including, but not limited to: functional/system performance requirements, electrical requirements, data transmission/communication requirements, safety/password requirements, environmental requirements, and interface requirements with other components of the system.

The Contractor shall request in writing the Engineer's approval to start the Final Inspection a minimum of 14 days prior to the requested start date. The Engineer reserves the right to reschedule the start date if needed. The start date for the Final Inspection cannot be prior to the successful completion of the overall burn-in period.

An unsuccessful or incomplete Final Inspection shall require a new Final Inspection after the Contractor has made the necessary corrections. Up to 14 days shall be allowed for the Engineer to conduct a Final Inspection. The presence of the MDOT ITS Engineer or his/her designee is required during the final inspection.

The Engineer reserves the right to require, at no additional expense to the State, the attendance of a qualified technical representative of the equipment and/or software manufacturers to attend a portion of a Final Inspection.

The Contractor shall be responsible for the full maintenance of all project equipment and materials during the entire time period from the successful completion of the burn-in period until Final System Acceptance is granted.

Final System Acceptance. Upon successful completion of the Final Inspection and all other items of work on the project, the Engineer will grant Final System Acceptance in accordance with Subsection 105.20 of the Standard Specifications.

Beneficial Use of Dynamic Message Signs During Construction. Each DMS shall be roadside controllable (by sign vendor software) within 30 days of attachment to structures (visible to motorists). The Contractor's construction schedule shall clearly identify when installation of the signs over the roadway shall occur, and when roadside control shall be established for each sign. The Contractor shall not install a DMS over the roadway until all ancillary and infrastructure elements, including cabinets, controllers, conduits, cabling, etc. necessary to operate the sign are in place and functional. Once roadside controllable, the Contractor shall display emergency, special event, construction, safety or traveler information messages approved by MDOT, only when requested by MDOT, at no additional cost to MDOT. Normal diagnostic messaging for the purpose of installation and testing shall be determined by the Contractor but shall not be allowed to the extent that excessive power consumption or distraction to motorists occurs as determined by the Engineer. Any beneficial use of the signs to MDOT and the public prior to Final Acceptance does not constitute MDOT acceptance or waive any Contractor testing requirements. The cost that may be incurred by the Contractor to display messages as described above during this construction contract shall be considered incidental and included in the cost of other items.

### Warranties

The following components of the Project shall be warranted against manufacturing defects and workmanship for a period of at least one (1) year:

- Radio interconnect system components as listed under SP 907-662-2
- Layer 2, Type A; Layer 3, Type C, Type C4, Type E1, and Type E2 Network Switches; and Network Terminal Server & Network Cellular Modem as listed under SP 907-663-5
- Communication Node Hut & Hut Modifications under SP 907-664-4
- Video Communication Equipment components under SP 907-665-1
- Bluetooth Detection System components under SP 907-666-3
- Roadway Weather Information System & Warning Signs with Flashing Beacon under SP 907-670-3
- Kiosk Monitoring Camera under SP 907-671-1



- Travel Time Sign under SP 907-674-1
- ITS Radar Vehicle Detector under SP 907-641-2
- On Street Video Equipment under SP 907-650-4;
- Highway Advisory System components under SP 907-655-2;
- Dynamic Message Signs under SP 907-656-1.

The following components of the Project shall be warranted against manufacturing defects and workmanship for a period as listed below for each respective item from the date of Final Maintenance Release.

- *Fiber Optic Cable*: Ten (10) year warranty on materials and workmanship
- *Traveler Information Video Kiosk*: Two (2) year extended warranty on materials/hardware
- *TMC Modification*: Two (2) year warranty on hardware and one (1) year warranty on software
- *Type C1, C2, & C3 Network Switches*: Five (5) year warranty on hardware
- *Type D, E, & F Network Switches*: Five (5) year warranty on hardware
- *Video Vehicle Detection and Multisensor Vehicle Detection*: Three (3) year warranty on hardware

The Contractor shall supply the warranties in writing with the Final Maintenance Release date documented on them. These warranties shall cover complete replacement at no charge for the equipment. The Contractor will be responsible for all labor, shipping, insurance and other charges until Final System Acceptance. Equipment covered by the manufacturers' 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 or manufacturers supplying the components and providing the equipment warranties recognize MDOT 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 material of equal or greater kind and quality and meeting all of the applicable specifications herein, 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 from the Contractor via telephone within four (4) hours of the time a call is made by the Department. If it is deemed necessary by the Engineer, technical support shall be available from factory certified personnel of the supplier via telephone within eight (8) hours of the time of the initial call made by the Department. During the warranty period, updates, patches, performance improvements, and corrections to all software and firmware used during the project shall be made available to the Department by the supplier at no additional cost.

### **Training**

After the Stand Alone Site Tests have been conducted but prior to Conditional System Acceptance, the Contractor shall provide separate training sessions for each subsystem training pay item included in the project. The training sessions may require multiple classes as noted below) and shall accommodate from six (6) to twelve (12) personnel per class. Additional sessions for

additional personnel may be required if the make and model of the subject component is not currently in the MDOT system.

The training must include formal classroom and "hands-on" operations training with a complete demonstration of the configuration, operation, and capabilities of each component in the system. The training should also consist of a hands-on demonstration of all software configuration and functionality where applicable. Each training day shall include a mixture of classroom style training in equipment operations, hands-on operator training using the same models of equipment furnished for the project, and question and answer sessions.

During the burn-in period, the Contractor shall also provide two (2) identical non-consecutive training sessions on the maintenance of the overall system. The training shall be provided for at least ten (10) personnel with individual copies of all training materials provided to each participant. The training must include both classroom style training and hands-on training in the field of the maintenance and troubleshooting procedures required for each component. Additional sessions for additional personnel may be required if the make and model of certain components are not currently in the MDOT system.

Prior to scheduling the training, the Contractor shall submit resume and references of the training instructor(s) to the Engineer for approval. The qualifications of the trainers must meet, at a minimum, the recommended qualifications of the equipment manufacturer with a minimum of four years of experience in training personnel. If qualified personnel are not on the Contractor's staff, a representative of the manufacturer shall provide the training.

The training shall be provided at an agreed upon location. If training requires travel on the part of training instructors, then the cost of travel shall be included.

The Contractor shall provide individual copies of documentation, training, and maintenance materials for each participant. These materials shall include detailed specifications and information pertaining to each device in the system. The documentation shall include details of the technical and operational aspects of the completed system. This shall include operational and maintenance manuals, system diagrams, cabling diagrams and mounting/positioning details. The Contractor shall supply emergency contact information and necessary procedures for obtaining vital replacement parts within a designated, agreed upon time frame.

The Contractor shall submit a detailed Training Plan including course agendas, detailed description of functions to be demonstrated, and a general schedule to the Engineer for approval within 90 days of Contract Notice-to-Proceed. The exact date of the training shall be submitted to the Engineer for approval at least four (4) weeks ahead of the date.

**Grounding**

The Contractor shall provide a grounding and lightning protection system to protect from electrical power surges caused by lightning or disruptions in the power supply system. Ground rods, ground conductor, lightning collectors and appurtenances shall be as detailed on the plans and as required by these specifications.

General. All non-current carrying metal parts of the site shall be grounded according to NEC specifications. In addition, all non-current carrying metal parts shall have a voltage potential of zero relative to reference ground. This reference ground shall be achieved via the equipment-grounding conductor.

Support cable, metallic cable sheaths, conduit, metal poles, pedestals, and communication building shall be made mechanically and electrically secure and grounded. Bonding and grounding jumpers shall be properly sized according to the NEC and in no case shall they be smaller than a #6 AWG copper wire. Ground pole-mounted accessories to the pole. Equipment on wood poles shall be grounded.

Permanently ground the poles by bonding the No. 6 AWG solid copper wire to a separate ground rod.

Metal raceways, metal enclosures of electrical devices, lighting fixtures, panelboards, and other non-current carrying metallic parts of equipment shall be securely grounded.

Ground rods shall be installed according to plan details. A length of copper conductor shall be attached to the ground rod, utilizing the specified grounding methods, and connected to the grounding system. Do not ground to a permanent water system instead of the driven ground rod. Ensure that grounding devices conform to the requirements of the NEC and NEMA.

Cabinet Grounding. A single-point grounding system shall be constructed.

All grounds for the cabinet shall be installed on the side of the building that utilities, communication cables, and fiber enter. All earth grounds shall be connected to this point, including the grounding system for Surge Protection Devices (SPD). All connections to SPDs shall be made according to the manufacturer's recommendations.

A single ground bus bar shall be mounted on the side of the cabinet wall adjacent to the power panel for the connection of AC neutral wires and chassis ground wires.

The Contractor shall ensure that communication cables, AC power, emergency generator, and equipment frames are connected by the shortest practical route to the grounding system. The lead lengths from each device to the SPD shall be protected. Electrical continuity of all connections shall be verified. All non-conducting surface coatings shall be removed before each connection is made. Ground conductors shall be downward coursing, vertical, and as short and straight as possible. Sharp bends and multiple bends shall be avoided in grounding conductors.

**Surge Suppressor**

Surge protection device (SPD) shall be provided to protect electronics from lightning, transient voltage surges, and induced current. All SPDs shall be installed at the top and bottom of each pole to provide reliable lightning protection. SPDs shall be installed on all power, data, video and any other conductive circuit.

SPD for 120 Volt or 120/240 Volt Power. A SPD shall be installed at the utility disconnect to the

cabinet. The SPD at the utility disconnect shall include L-N, L-G, and N-G protection. The SPD shall meet the requirements of UL 1449, Third Edition and be listed by a NRTL.

A SPD shall be provided where the supply circuit enters the cabinet. The SPD shall be located on the load side of the main disconnect and ahead of any and all electronic devices and connected in parallel with the AC supply. The SPD in the cabinet shall include L-N, L-G, and N-G protection. The SPD shall meet the requirements of UL 1449, Third Edition and be listed by a NRTL.

The SPD shall have a visual indication system that monitors the weakest link in each mode and shows normal operation or failure status and also provides one set of normally open (NO)/normally closed (NC) Form C contacts for remote alarm monitoring. The enclosure for a SPD shall have a NEMA 4 rating

SPDs for Low-Voltage Power, Control, Data and Signal Systems. A specialized SPD shall be installed on all conductive circuits including, but not limited to, data communication cables, coaxial video cables, and low-voltage power cables. These devices shall comply with recommendations from the device manufacturer.

SPD at Point of Use. A SPD shall be installed at the point the ITS devices receive 120 volt power and connected in series with the circuits. SPDs shall be selected and installed according to recommendation from the device manufacturer. The units shall be rated at 15 or 20 amps load and configured with receptacles. These units shall have internal fuse protection and provide common mode (L+N-G) protection.

SPDs shall meet the requirements of UL 497B or UL 497C, as applicable, and are listed by a NRTL.

### **Solar Power Systems**

The Contractor shall provide a solar power system meeting the following requirements:

1. The supplier shall provide documentation specifying approximate daily power generation, power consumption, storage capacity, and charge rates representing an optimal power source to the satisfaction and approval of the Project Engineer.
2. Shall include a solar controller with automatic battery temperature compensation and automatic charging circuitry to prevent overcharging.
3. The battery back-up system chargers shall meet all specified requirements while operating between -40 °C to +74 °C (-40 °F to +165 °F), and 95% relative humidity.
4. Shall include metering for voltage and charging current.
5. Solar panels shall be Jet Propulsion Laboratory Block-5 tested and approved.
6. Solar panels shall be compliant with IEC 61215 and IEEE 1262.
7. Solar panels shall be break-resistant and sealed.
8. Battery shall be maintenance-free, sealed, gel-cell.
9. The Contractor shall test the battery for faulty irregularities and provide documentation to the Project Engineer stating the battery's voltage, and resistance. The battery voltage and resistance shall meet the manufacturer's specifications.

The Solar Power Systems for each site type shall include but are not limited to the following:

- *HAR Flashing Beacons:*
  1. A performance design study shall be conducted and submitted for approval for the proposed solar power system. The solar power system shall be designed on the performance design study.
  2. The solar system shall, at a minimum, operate the flashing beacons continuously at full power for at least three (3) days with no sunlight. This must be accomplished without an auxiliary generator or AC power connection.
  3. Solar panels shall have a power rating of 80-watts.
  4. The Solar power system shall include a separate aluminum NEMA 3R enclosure to house the battery. This enclosure shall be designed to provide protection from rain, sleet, snow and corrosion.
    - a. The enclosure shall be constructed from 0.125" thick aluminum alloy type 5052- H32.
    - b. The enclosure shall be lockable.
    - c. The enclosure door shall include a EDPM rubber or equivalent closed-cell gasket
  
- *Type A BDS:*
  1. All solar panels shall be in accordance with UL1703, or equivalent.
  2. The solar cell shall have a minimum power capacity of 30 watts.
  3. The battery shall provide sufficient power for all BDS component operation for a minimum of 168 hours (7 days).
  4. Should solar power be specified with the Type A BDS, the NEMA 4 enclosure shall be sized appropriately for the solar power components.

Performance Design Study. A performance design study shall be conducted where required before the installation of a Solar Power System. The performance design study shall include, but is not limited to:

1. The daily Solar Insulation data averaged on a monthly basis.
2. The correct Tilt Angle for the solar array.
3. The daily Array Output, in Amp-Hours, averaged on a monthly basis.
4. The total Daily Load requirement, in Amp Hours, averaged on a monthly basis.
5. A monthly Loss of Load Probability (LOLP) of the designed power supply.
6. The number of Battery Reserve Days, averaged on a monthly basis.
7. The monthly Average Battery State of Charge.
8. The statistical Interval to Loss of Load, in years.

## **MISSISSIPPI DEPARTMENT OF TRANSPORTATION**

**SECTION 904 - NOTICE TO BIDDERS NO. 2812**

**CODE; (SP)**

**DATE: 09/01/2020**

**SUBJECT: Traffic Signal and ITS Components**

Bidders are hereby advised that all products selected for use on this project shall be in compliance with 2 CFR 200.216. No telecommunication and video surveillance equipment or services shall be manufactured by the following companies: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities.

The Contractor shall provide a Certification Statement that the referenced product(s) is not manufactured by any of the following: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities. (as per 2 CFR 200.216)

# MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3692

DATE: 11/18/2021

SUBJECT: Specialty Items

PROJECT: NH-0007-01(094)/108204301 & NH-9039-00(001)/108204302 - ALCORN

Pursuant to the provisions of Section 108, the following work items are hereby designated as "Specialty Items" for this contract. Bidders are reminded that these items must be subcontracted in order to be considered as specialty items.

## CATEGORY: PAVEMENT STRIPING AND MARKING

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Line No	Pay Item	Description
0310	626-A004	6" Thermoplastic Traffic Stripe, Skip White
0320	626-B004	6" Thermoplastic Traffic Stripe, Continuous White
0330	626-C004	6" Thermoplastic Edge Stripe, Continuous White
0340	626-D003	6" Thermoplastic Traffic Stripe, Skip Yellow
0350	626-E004	6" Thermoplastic Traffic Stripe, Continuous Yellow
0360	626-G002	Thermoplastic Detail Stripe, White
0370	626-G003	Thermoplastic Detail Stripe, Yellow
0380	626-H004	Thermoplastic Legend, White
0390	626-H005	Thermoplastic Legend, White
0400	627-K001	Red-Clear Reflective High Performance Raised Markers
0410	627-L001	Two-Way Yellow Reflective High Performance Raised Markers
0550	907-624-A002	6" Inverted Profile Thermoplastic Traffic Stripe, Skip White
0560	907-624-B002	6" Inverted Profile Thermoplastic Traffic Stripe, Continuous White
0570	907-624-C001	6" Inverted Profile Thermoplastic Traffic Stripe, Skip Yellow
0580	907-624-D002	6" Inverted Profile Thermoplastic Traffic Stripe, Continuous Yellow
0590	628-G001	6" High Performance Cold Plastic Traffic Stripe, Skip White
0600	628-H001	6" High Performance Cold Plastic Traffic Stripe, Continuous White
0610	628-I002	6" High Performance Cold Plastic Traffic Stripe, Skip Yellow
0620	628-J001	6" High Performance Cold Plastic Traffic Stripe, Continuous Yellow

## CATEGORY: TRAFFIC CONTROL - PERMANENT

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Line No	Pay Item	Description
0450	907-632-C001	Modify Existing Traffic Signal Cabinet Assembly
0452	907-632-D001	Solid State Traffic Actuated Controller, Type 1
0460	907-634-B001	Traffic Signal Equipment Pole Shaft Extension, 10'
0470	907-634-I004	Wood Pole, Class III Height 45'
0480	907-637-F005	Traffic Signal Conduit, Aerial Supported, Type 1, 2"
0484	907-641-B002	Signal Advanced Radar Vehicle Detection Sensor, Type 2
0488	907-641-D001	Radar Vehicle Detection Cable
0490	907-662-D002	Radio Interconnect, Broadband, Short Range HPIRU02
0492	907-662-D002	Radio Interconnect, Broadband, Short Range HPIBU02
0500	907-663-A001	Network Switch, Type A
0510	907-663-C001	Cellular Modem

CATEGORY: TRAFFIC CONTROL - TEMPORARY

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Line No	Pay Item	Description
0160	619-A1001	Temporary Traffic Stripe, Continuous White
0170	619-A2001	Temporary Traffic Stripe, Continuous Yellow
0180	619-A3001	Temporary Traffic Stripe, Skip White
0190	619-A4002	Temporary Traffic Stripe, Skip Yellow
0200	619-A5001	Temporary Traffic Stripe, Detail
0210	619-A6002	Temporary Traffic Stripe, Legend
0220	619-D2001	Standard Roadside Construction Signs, 10 Square Feet or More
0230	619-D2002	Standard Roadside Construction Signs, 10 Square Feet or More, Permanent
0240	619-F1001	Concrete Median Barrier, Precast
0250	619-F2001	Remove and Reset Concrete Median Barrier, Precast
0260	619-G4001	Barricades, Type III, Double Faced
0270	619-G4005	Barricades, Type III, Single Faced
0280	619-G5001	Free Standing Plastic Drums
0290	619-G7001	Warning Lights, Type "B"



## MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3694

CODE: (SP)

DATE: 11/18/2021

SUBJECT: Lane Closure Restrictions and Additional Work Requirements

PROJECT: NH-0007-01(094) / 108204301 – Alcorn County  
NH-9039-00(001) / 108204302 – Alcorn County

Bidders are hereby advised of the following lane closure restrictions and additional work requirements:

**Unless otherwise noted herein or specific written permission is allowed by the Engineer, the following conditions apply for work from Sta. 199+33 (Bridge End West of Cass Street) to Sta. 258+77 (just East of Harper Road) along with all the intersections within these limits. These conditions will be in effect throughout the life of the project.**

No Lane Closures allowed for any reason:

- Daily from 7:00 AM to 7:00 PM Monday through Saturday
- Sundays from 7:00 AM to 5:00 PM

Lane Closures and Night Work allowed:

- 7:00 PM to 7:00 AM the following day, Monday through Saturday
- 5:00 PM Sunday to 7:00 AM Monday

With the exception of the requirements listed below regarding Working Sheet TS-7, bidders are hereby advised that when the main lanes of a roadway are fine milled, traffic will be allowed to run on a milled surfaces for up to five (5) calendar days. The Contractor will be assessed a penalty of \$5,000 per calendar day afterwards until the milled surfaces are covered with the next lift of asphalt. It shall be the Contractor's responsibility to ensure that the milling operations do not commence until such time as forecasted weather conditions are suitable enough to allow the placement of the asphalt pavement after the milling operations.

**Unless otherwise noted herein or specific written permission is allowed by the Engineer, Bidders are advised of the following exceptions to the above listed times. These conditions apply for work in the westbound lanes from Sta. 199+33 to Sta. 258+77 throughout the life of the project:**

- Once a lane is closed to perform the removal of white-topping shown on Working Sheet TS-7, work will be allowed 24 hours per day and 7 days per week until the 12.5mm lift of SMA is placed in that lane.
- While the lane closure is in place for the work shown on Working Sheet TS-7, all mill and overlay work except for the surface lift from Sta. 199+33 (Bridge End West of Cass Street) to Sta. 241+44 near South Parkway and from Sta. 246+10 to Sta. 258+77 (just East of Harper Road) **SHALL** be performed in that lane. This includes extra depth

**milling at the intersections in these locations. Work will be allowed 24 hours per day and 7 days per week during this operation.**

**Prior to paving, milled areas shall be thoroughly swept to ensure fines and other debris have been removed from the milled surface.**

**All night work shall be in accordance with Section 680 – Portable Construction Lighting.**

**Lane closures using Precast Concrete Median Barriers shall not begin until the Contractor is ready to begin removal work. Removal work shall commence immediately (not to exceed 8 hours) after installation of the Precast Concrete Median Barriers. Simultaneous work in other locations will be allowed, but work in this area must continue until this site has been reopened to traffic. Once work in this area has begun, the Contractor shall continue without any interruption of more than 24 hours if weather permits until the site has been reopened. Work 24 hours a day and 7 days a week is allowed in these areas but not required. If for any reason, the Contractor discontinues work as described herein, all other work on the project shall cease until work resumes in this area.**

If the lane closure restrictions listed above are violated, the Contractor will be charged a fee of **\$500.00** for each full or partial five minute period until the roadway is back in compliance with the lane closure restriction requirement.

For the purposes of this contract, official time shall be the announced time available at the Jackson area telephone number (662) 842-8422.

# MISSISSIPPI DEPARTMENT OF TRANSPORTATION

**SECTION 904 - NOTICE TO BIDDERS NO. 3695**

**CODE: (SP)**

**DATE: 11/17/2021**

**SUBJECT: Plan Sheet and Quantity Corrections**

**PROJECT: NH-0007-01(094) / 108204301 – Alcorn County  
NH-9039-00(001) / 108204302 – Alcorn County**

Bidders are advised that the Stations shown in the Mainline Five-Lane Typical Section on Sheet Number 10 (Working Number TS-8) are in error. They should show the following:

**Sta. 255+03-258+78 Right  
Sta. 257+77-261+63 Left**

Bidders are advised that the Summary of Quantities sheets in the Plans do not include the following pay items:

1. 907-632-D001, Solid State Traffic Actuated Controller, Type 1
2. 907-641-A002, Signal Stop Bar Radar Vehicle Detection Sensor, Type 2
3. 907-641-B002, Signal Advanced Radar Vehicle Detection Sensor, Type 2
4. 907-641-D001, Radar Vehicle Detection Cable
5. 503-C010, Saw Cut, Full Depth

The estimated quantities for these items are shown in the table below. The quantities on the bid items are correct.

<b>Pay Item No.</b>	<b>Description</b>	<b>Original Quantity</b>	<b>Revised Quantity</b>
907-632-D001	Solid State Traffic Actuated Controller, Type 1	0 EA	5 EA
907-641-A002	Signal Stop Bar Radar Vehicle Detection Sensor, Type 2	0 EA	33 EA
907-641-B002	Signal Advanced Radar Vehicle Detection Sensor, Type 2	0 EA	16 EA
907-641-D001	Radar Vehicle Detection Cable	0 LF	12,375 LF
503-C010	Saw Cut, Full Depth	0 LF	2,950 LF

Bidders are further advised that there are two individual pay items for Pay Item No. Radio Interconnect, Broadband, Short Range, as indicated on Page 11, Sheet #39 of the Contract Plans. The estimated quantities for these items are shown in the table below. The quantities on the bid items are correct.

<b>Pay Item No.</b>	<b>Description</b>	<b>Original Quantity</b>	<b>Revised Quantity</b>
907-662-D002	Radio Interconnect, Broadband, Short Range	12 EA	0 EA
907-662-D002	Radio Interconnect, Broadband, Short Range, HPIRU02	0 EA	11 EA
907-662-D002	Radio Interconnect, Broadband, Short Range, HPIBU02	0 EA	1 EA

Bidders are further advised of the following plan corrections:

- On Page 1, Sheet #29, of the Contract Plans, the Site #3 Cabinet (72 at Cemetery) is shown to have a Network Switch. This is in error. This should say “SOLAR POWER SYSTEM”.
- Page 11, Sheet #39, of the Contract Plans shows Pay Item No. 907-631-I001, Wood Pole, Class III, Height 50’. This Pay Item Number and Description are in error. Pay Item No. 907-634-I004, Wood Pole, Class III Height 45’ is required. The bid sheets are correct.

Radar Quantity Intersection Details are as follows:

72 at Norman/Alcorn Drive:	4 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable
72 at 45 SB Ramp:	2 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable
72 at 45 NB Ramp:	2 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable 1 - Solid State Traffic Actuated Controller
72 at 145/Tate:	4 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable 1 - Solid State Traffic Actuated Controller

72 at Fulton:	4 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable
72 at Cass:	4 - Signal Stop Bar Radar Vehicle Detection Sensors (One for future Westbound Left Turn Signal) 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable
72 at Parkway:	5 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable 1 - Solid State Traffic Actuated Controller
72 at Harper:	4 - Signal Stop Bar Radar Vehicle Detection Sensors 2 - Signal Advanced Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable 1 - Solid State Traffic Actuated Controller
785/Cass at Fillmore:	1 - Solid State Traffic Actuated Controller 4 - Signal Stop Bar Radar Vehicle Detection Sensors 1375 FT Radar Vehicle Detection Cable

# MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-641-2

CODE: (IS)

DATE: 05/25/2021

SUBJECT: Radar Vehicle Detection

Section 641, Radar Detection Systems, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete the title of Section 641 on page 584 and substitute the following.

## **SECTION 907-641 - RADAR VEHICLE DETECTION**

Delete Subsection 641.01 on page 584, and substitute the following.

**907-641.01--Description.** This work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, test, train and operate Radar Vehicle Detection, including Signal Radar Vehicle Detection (SRVD) and Intelligent Transportation Systems (ITS) Radar Vehicle Detection (IRVD). These systems will provide roadway monitoring capabilities via electromagnetic microwave radar signals through the air. The signals bounce off vehicles in their paths and the signal is returned to the detector. The returned signals are processed to determine traffic parameters.

**907-641.01.1--Signal Radar Vehicle Detection.** SRVD provide traffic parameters necessary to the traffic signal controller operation for vehicle detection. All Signal Radar Vehicle Detection shall be supplied from the same manufacturer per construction project.

Type 1 SRVD shall be used for basic vehicle detection at signalized intersections as described below in this specification. Type 2 SRVD shall have all of the functionality of the Type 1 SRVD with additional features described below in this specification.

Type 2 SRVD shall utilize a matrix of radar signals for two-dimensional coverage and shall track vehicles through each type of detection's specified Area of Coverage. The Type 2 SRVD shall report real-time detection of both moving and stopped vehicles.

**907-641.01.2--ITS Radar Vehicle Detection.** IRVD shall provide data, including, but not limited to speeds, volume, lane occupancy and classification.

**907-641.02--Materials.**

**907-641.02.1--Radar Design.** Delete the first sentence of the first paragraph of Subsection 641.02.1 on page 584, and substitute the following.

The IRVD and the SRVD stop bar microwave shall operate in the 24.0 to 24.25 GHz frequency band.

**907-641.02.1.1--Cabinet Interface Unit (CIU) Design.** Delete the last paragraph of Subsection 641.02.1.1 on page 585, and substitute the following.

The CIU shall operate in the harsh conditions of a signal cabinet, and comply with the applicable standards stated in the NEMA TS 2-2003 standard for shock, vibration, and temperature.

Delete Subsection 641.02.2 and 641.02.3 on pages 585 and 586, and substitute the following.

**907-641.02.2--Area of Coverage--SRVD.**

**907-641.02.2.1--Stop Bar Radar Vehicle Detection.** Type 1 SRVD stop bar radar sensor shall track vehicles through a field of view that extends out a minimum of 100 feet

The Type 1 SRVD stop bar radar sensor shall be able to detect and report presence in lanes located within a minimum 100-foot from the face of the detector. Any variance of the detectable area shall be approved by the Engineer.

The Type 1 SRVD stop bar radar sensor shall be able to detect up to four (4) lanes with eight (8) or sixteen (16) individual zones as indicated in the plans.

Type 2 SRVD stop bar radar sensor shall have all the functionality of the Type 1 SRVD stop bar sensor with the addition of the following:

- Type 2 SRVD stop bar radar sensor shall detect true presence of vehicles whether in motion or still without using Locking or Latching Algorithms.
- Type 2 SRVD stop bar radar sensor shall report presence in lanes with a minimum 90 degree arc from the face of the detector.
- Type 2 SRVD stop bar radar sensor shall be able to detect a minimum of ten (10) lanes.

**907-641.02.2.2--Advanced Radar Vehicle Detection.** The Type 1 SRVD advanced radar sensor shall be able to detect and report vehicle information such as range and speed when mounted within 50 feet of the center of the lanes of interest. Variance of this distance shall be approved by the Engineer per the application.

The Type 1 SRVD advanced radar sensor shall be forward fired and be able to detect and report vehicle information when mounted at heights above the road surface, as per manufacturer's recommendations.

The Type 1 SRVD advanced radar sensor shall be able to detect and report vehicles on the roadway up to 600 feet from the detector.

The Type 2 SRVD advanced radar sensor shall have all the functionality of the Type 1 SRVD advanced radar sensor with the following additions:

- Type 2 SRVD advanced radar sensor shall be able to detect and report heavy vehicles on the roadway up to 900 feet from the detector.
- Type 2 SRVD advanced radar sensor shall be able to detect Estimated Time of Arrival (ETA) for vehicles. The advanced radar sensors shall support user configurable upper and lower ETA filters for each zone. The sensors shall support the configuring of ETA filters in increments of 0.1 seconds.

**907-641.02.3--Area of Coverage-IRVD.** The IRVD's field of view shall cover an area with a minimum detection range of six (6) feet from the IRVD and a maximum detection range of 250 feet from the IRVD.

Delete the title of Subsection 641.02.4 on page 586, and substitute the following.

**907-641.02.4--Detection Zones--SRVD.**

Delete the title of Subsection 641.02.4.1 on page 586, and substitute the following.

**907-641.02.4.1--Stop Bar Radar Vehicle Detection.**

After the last sentence of the second paragraph of Subsection 641.02.4.1 on page 586, add the following.

A minimum of one (1) separate detection zone per lane is required.

Delete the title of Subsection 641.02.4.2 on page 586, and substitute the following.

**907-641.02.4.2--Advanced Radar Vehicle Detection.**

Delete the third paragraph of Subsection 641.02.4.2 on page 586, add the following.

The advanced radar sensors shall provide vehicle call and extend data on up to eight (8) channels that can connect to contact closure modules compliant with NEMA TS 1, NEMA TS 2, and 170/2070 controller cabinets.

Delete the title of Subsection 641.02.5 on page 586, and substitute the following.

**907-641.02.5--Detection Zones--IRVD.**

Delete the title of Subsection 641.02.6 on page 586, and substitute the following.

**907-641.02.6--Capabilities--SRVD.**

Delete the title of Subsection 641.02.6.1 on page 587, and substitute the following.

**907-641.02.6.1--Stop Bar Radar Vehicle Detection.**



Delete the title of Subsection 641.02.6.2 on page 587, and substitute the following.

**907-641.02.6.2--Advanced Radar Vehicle Detection.**

After item 2) of Subsection 641.02.6.2 on page 587, add the following.

- 3) Maintain a detection accuracy of 95% for each detection zone set-up on the graphical user interface.

Delete the title of Subsection 641.02.7 on page 587, and substitute the following.

**907-641.02.7--Capabilities--IRVD.**

Delete the first sentence of the first paragraph of Subsection 641.02.7 on page 587, and substitute the following.

The IRVD shall detect true presence of vehicles whether in motion or still without using Locking or Latching Algorithms.

Delete item 5) in Subsection 641.02.7 on page 587, and substitute the following.

- 5) IRVD in forward-looking configuration shall monitor traffic in one lane and be capable providing the following data: Volume, occupancy, average speed and travel direction in the lane.

**907-641.02.8--Environmental Conditions and Protection.** Delete the last sentence of the first paragraph of Subsection 641.02.8 on page 588, and substitute the following.

Except as stated otherwise herein, the equipment shall meet all its specified requirements during and after subjecting to any combination of the NEMA TS 2-2003 standard and the following:

**907-641.02.10--Electrical.** Delete the first paragraph of Subsection 641.02.10 on page 588, and substitute the following.

The radar sensors shall consume less than 10 W and shall operate with a DC input between 12 VDC and 28 VDC for IRVD and 9 VDC and 32 VDC for SRVD, or POE. POE injectors shall be approved by the Engineer.

Delete the title of Subsection 641.02.11 on page 589, and substitute the following.

**907-641.02.11--Radar Design.**

**907-641.02.12--Communication Ports.** Delete the second sentence of the first paragraph of Subsection 641.02.12 on page 589, and substitute the following.

The IRVD shall be upgradable (optional) to include integral 10/100 Base-T Ethernet supporting TCP, UDP, IP, ARP, ICMP.

Delete the second sentence of the second paragraph of Subsection 641.02.12 on page 589, and substitute the following.

For SRVD, any external device needed to convert serial to IP Ethernet within the cabinet for remote communications shall be provided with the radar sensor unit at no additional cost.

Delete Subsection 641.02.13 on page 589, and substitute the following.

**907-641.02.13--Radar Detection Cabling.** All Radar Detection cable shall be paid per the unit cost of the pay item for Radar Detection Cable, as shown on the plans or details. The manufacturer is responsible for obtaining plan sets and ensuring cable lengths are properly measured and accounted for in the bid price for each sensor unit and as shown on the plans.

The cable shall have a single continuous run with no splices, unless inside a manufacturer supplied junction box. The cable shall be terminated only on the two (2) farthest ends of the cable. The cable shall meet the requirements of the manufacturer.

Delete the title of Subsection 641.02.15 on page 590, and substitute the following.

**907-641.02.15--Configuration--SRVD.**

Delete the title of Subsection 641.02.15.1 on page 590, and substitute the following.

**907-641.02.15.1--Stop Bar Radar Vehicle Detection.**

Delete the title of Subsection 641.02.15.2 on page 590, and substitute the following.

**907-641.02.15.2--Advanced Radar Vehicle Detection.**

**907-641.03--Construction Requirements.** Delete the first sentence of the first paragraph of Subsection 641.03 on page 590, and substitute the following.

Radar Detection System shall be constructed to withstand and operate in sustained winds of up to 90 mph and a 30% gust factor.

Delete the title of Subsection 641.03.1 on page 590, and substitute the following.

**907-641.03.1--SRVD Installation Requirements.**

Delete the first sentence of the third paragraph of Subsection 641.03.1 on page 590, and substitute the following.

Unused conductors in the cable shall be ground or terminated in the cabinet in accordance with the manufacturer's recommendations.

Delete the last sentence of the third paragraph of Subsection 641.03.1 on page 590, and substitute the following.

If required by the plans and installation methods, impedance termination and testing of multi drop runs shall be required per RS485 multi-drop standards.

Delete the title of Subsection 641.03.2 on page 591, and substitute the following.

**907-641.03.2--IRVD Installation Requirements.**

Delete Items 1) and 2) of Subsection 641.03.2 on page 591, and substitute the following.

- 1) The IRVD shall be mounted in side-fired or **forward-looking** configuration on poles as shown in the plans, using mounting brackets. The brackets shall be attached with approved 3/4-inch wide stainless steel bands.
- 2) The Contractor shall install the detector unit on a pole at the manufacturer's recommended height above the road surface so that the masking of vehicles is minimized and that all detection zones are contained within the specified elevation angle as suggested by the manufacturer.

Delete Items 4) and 5) of Subsection 641.03.2 on page 591, and substitute the following.

- 4) The IRVD mode of operation, detection zones and other calibration and set up will be performed using a MS Windows™ based software and a Notebook PC. The software shall allow verification of correct setup and diagnostics. It shall include facilities for saving verification data and collected data as well as saving and retrieving sensor setup from disk file.
- 5) Unused conductors in the ITS Radar Vehicle Detector Cable shall be grounded or terminated in the cabinet in accordance with the manufacturer's recommendations. Terminated conductors shall be individually doubled back and taped, then loosely bundled and secured.

Delete Item 7) of Subsection 641.03.2 on page 591, and substitute the following.

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

Delete Subsection 641.03.3 on pages 591 and 592, and substitute the following.

**907-641.03.3--Testing.** All equipment associated with the IRVD 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 Notice to Bidders entitled "ITS General

Requirements.” 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.

Delete Subsection 641.03.4 on page 592, and substitute the following.

**907-641.03.4--Submittals.** The submittal requirements defined in the Notice to Bidders entitled “ITS General Requirements” shall be met for IRVD sites. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

Delete Subsection 641.03.5 on pages 592 and 593, and substitute the following.

**907-641.03.5--Quality Assurance.** The quality assurance requirements defined in the Notice to Bidders entitled “ITS General Requirements” shall be met for IRVD sites. All costs associated with the quality assurance requirements shall be included in the overall contract price.

Delete Subsection 641.03.6 on page 593, and substitute the following.

**907-641.03.6--Warranty.** At a minimum, the warranty requirements defined in the Notice to Bidders entitled “ITS General Requirements” shall be met for IRVD equipment.

The Signal Radar Vehicle Detection equipment 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 shall be 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 component 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 from the supplier via telephone within four 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.

Delete Subsection 641.03.7 on page 593, and substitute the following.

**907-641.03.7--Training.** The minimum training requirements shall be as defined in the Notice to Bidders entitled “ITS General Requirements” for IRVD equipment.

For Signal Radar Vehicle Detection equipment training, the supplier of the radar detection sensors shall, at a minimum, provide an 8-hour operations and maintenance training class with suitable documentation for up to eight (8) persons selected by the Department, if shown and quantified in

the plans. The training shall be at the discretion and approved by the Engineer. The training must include both classroom style training and hands-on training in the field of the maintenance and troubleshooting procedures required for the system. The training should also consist of a hands-on demonstration of all software configuration and functionality where applicable. The operations and maintenance class shall be scheduled at a mutually acceptable time and location.

**907-641.03.8--Maintenance and Technical Support.** The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the radar detection sensor(s). The manufacturer of the radar detection system must provide, and have a parts support system capable of providing parts for a period of five (5) years from the date of system acceptance. Spare parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale of said spare parts.

The suppliers shall maintain an ongoing program of technical support for the Radar Detection System. This technical support shall be available via telephone or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale of said technical support services.

**907-641.04--Method of Measurement.** Delete the paragraphs of Subsection 641.04 on page 593, and substitute the following.

The Radar Vehicle Detection Sensors, of the type specified, will be measured as a unit per each.

Radar Vehicle Detection Cable will be measured by the linear foot, measured horizontally along the conduit, messenger cable or mast arm and vertically along the pole.

Radar Vehicle Detection Training will be measured per lump sum.

**907-641.05--Basis of Payment.** Delete the paragraphs of Subsection 641.05 on pages 593 & 594, and substitute the following.

**Signal Stop Bar and Signal Advanced Radar Vehicle Detection Sensor**, of the type specified, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for furnishing all materials, **all documentation and submittals, warranties**, construction installation, connecting, testing, for all equipment, tools, labor, **quality assurance**, and **all** incidentals required to complete the work. Work shall include furnishing, installing, system integration, **and** testing of complete radar sensor system that includes the unit, cabling between the unit and the cabinet, surge protection devices, communication converters (if required), all conduit, risers and weatherhead between the radar sensors and the cabinet, interconnection wiring, power supply, connections to support structures (includes all incidental components, attachment hardware, mounting brackets, mounting arms, bolts, or any other items to mount the radar sensor as intended), **and** satisfactory completion of testing and training requirements and all work, equipment and appurtenances as required to effect the full operation including remote and local control of the radar site complete in place and ready to use. The price bid shall also include all system documentation including: shop drawings, operations and

maintenance manuals, wiring diagrams, block diagrams and other material necessary to document the operation of the radar sensor. Cabinet Interface Units shall be provided, and installed as specified in the plans, which shall be inclusive of any testing, connections, terminations, and testing required for interfacing the radar sensors and signal controller within the signal cabinet environment.

ITS Radar Vehicle Detection Sensor, of the type specified, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for furnishing all materials, all documentation and submittals, warranties, construction installation, connecting, testing, for all equipment, tools, labor and incidentals required to complete the work and quality assurance. Work shall include furnishing, installing, system integration, and testing of complete radar sensor system that includes the unit, surge protection devices, communication converters (if required), all conduit, risers and weatherhead between the radar sensors and the cabinet, interconnection wiring, power supply, connections to support structures (includes all incidental components, attachment hardware, mounting brackets, mounting arms, bolts, or any other items to mount the radar sensor as intended), and satisfactory completion of testing requirements and all work, equipment and appurtenances as required to effect the full operation including remote and local control of the radar site complete in place and ready to use. The price bid shall also include all system documentation including: shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other material necessary to document the operation of the radar sensor. Cabinet Interface Units shall be provided, and installed as specified in the plans, which shall be inclusive of any testing, connections, terminations, and testing required for interfacing the radar sensors and signal controller within the signal cabinet environment.

Radar Vehicle Detection Cable will be paid at the contract unit price per linear foot, which price shall be full compensation for all labor, materials, equipment tools, furnishing, installing, system integration, connections, testing, and all incidentals necessary to complete the work.

Radar Vehicle Detection Training, measured as prescribed above, will be paid for as a lump sum unit price which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described above.

Delete the pay items listed on page 594, and substitute the following.

- 907-641-A: Signal Stop Bar Radar Vehicle Detection Sensor, Type \_\_\_\_\_ - per each
- 907-641-B: Signal Advanced Radar Vehicle Detection Sensor, Type \_\_\_\_\_ - per each
- 907-641-C: ITS Radar Vehicle Detection Sensor - per each
- 907-641-D: Radar Vehicle Detection Cable - linear foot
- 907-641-E: Radar Vehicle Detection Training - lump sum

# MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-707-3

CODE: (SP)

DATE: 10/27/2021

SUBJECT: Joint Materials

Section 707, Joint Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

## 907-707.02--Joint Filler.

907-707.02.2--Preformed Sponge, Rubber, Cork and Closed-Cell Polypropylene Foam Joint Fillers for concrete Paving and Structural Constructions. Delete the two paragraphs of Subsection 707.02.2 on page 755, and substitute the following.

Preformed joint filler shall conform to AASHTO M 153 for sponge, rubber, and cork and tested according to ASTM D545. The type required will be indicated on the plans.

Closed-cell polypropylene foam shall conform to the requirements in ASTM D8139 and tested in accordance with ASTM D545.

907-707.02.3--Wood. Delete paragraph (b) of Subsection 707.02.3 on page 755, and substitute the following:

- (b) Dimensions shall be as shown on the plans. Dimensions shown on the plans are “dressed” sizes in accordance with Table 3 of the American Softwood Lumber Standard, SP-20. At the discretion of the Engineer, a 3/4-inch dressed board may be used in lieu of a 1-inch dressed board. A tolerance of plus or minus 1/16 inch thickness and plus or minus 1/8 inch width will be permitted. For slip-form paving a tolerance of minus 1/4 inch on each end in length will be permitted.

907-707.06--Flexible Plastic Gasket for Joining Conduit. Delete the third paragraph of Subsection 707.06 on page 756, and substitute the following.

The Department may require the performance test described in ASTM C 990.

Mill & Overlay approximately 7.5 miles on US 72 from SR 2 to the end of the 5-Lane Section & approximately 1 mile on SR 785 from US 72 to the concrete section north of Wick St., known as Federal Aid Project No. NH-0007-01(094) / 108204301 & NH-9039-00(001) / 108204302 in Alcorn County.

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
Roadway Items					
0010	202-B009		840	Square Yard	Removal of Asphalt Pavement, Failed Areas
0020	202-B050		40	Linear Feet	Removal of Concrete Combination Curb & Gutter
0030	202-B076		1,264	Square Yard	Removal of Concrete Pavement, Failed Areas
0040	202-B240		5,732	Linear Feet	Removal of Traffic Stripe
0050	203-G001	(E)	1,450	Cubic Yard	Excess Excavation, FM, AH
0060	209-A009		2,150	Square Yard	Geotextile Stabilization, Type VII, Non-Woven
0070	304-A002	(GY)	300	Cubic Yard	Granular Material, LVM, Class 3, Group C
0080	403-A004	(BA1)	580	Ton	19-mm, HT, Asphalt Pavement
0090	403-A013	(BA1)	22,250	Ton	9.5-mm, HT, Asphalt Pavement
0100	403-D003	(BA1)	380	Ton	19-mm, HT, Asphalt Pavement, Polymer Modified
0110	406-D001		287,750	Square Yard	Fine Milling of Bituminous Pavement, All Depths
0120	407-A001	(A2)	24,100	Gallon	Asphalt for Tack Coat
0122	503-C010		2,950	Linear Feet	Saw Cut, Full Depth
0130	609-D001	(S)	40	Linear Feet	Combination Concrete Curb and Gutter Type 1
0140	618-A001		1	Lump Sum	Maintenance of Traffic
0150	618-B001		1	Square Feet	Additional Construction Signs [\$10.00]
0160	619-A1001		28	Mile	Temporary Traffic Stripe, Continuous White
0170	619-A2001		22	Mile	Temporary Traffic Stripe, Continuous Yellow
0180	619-A3001		28	Mile	Temporary Traffic Stripe, Skip White
0190	619-A4002		10	Mile	Temporary Traffic Stripe, Skip Yellow
0200	619-A5001		20,880	Linear Feet	Temporary Traffic Stripe, Detail
0210	619-A6002		4,220	Linear Feet	Temporary Traffic Stripe, Legend
0220	619-D2001		81	Square Feet	Standard Roadside Construction Signs, 10 Square Feet or More
0230	619-D2002		121	Square Feet	Standard Roadside Construction Signs, 10 Square Feet or More, Permanent
0240	619-F1001		700	Linear Feet	Concrete Median Barrier, Precast
0250	619-F2001		1,030	Linear Feet	Remove and Reset Concrete Median Barrier, Precast
0260	619-G4001		72	Linear Feet	Barricades, Type III, Double Faced
0270	619-G4005		36	Linear Feet	Barricades, Type III, Single Faced
0280	619-G5001		12	Each	Free Standing Plastic Drums
0290	619-G7001		13	Each	Warning Lights, Type "B"
0300	620-A001		1	Lump Sum	Mobilization
0310	626-A004		16	Mile	6" Thermoplastic Traffic Stripe, Skip White



Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
0320	626-B004		13	Mile	6" Thermoplastic Traffic Stripe, Continuous White
0330	626-C004		2	Mile	6" Thermoplastic Edge Stripe, Continuous White
0340	626-D003		13	Mile	6" Thermoplastic Traffic Stripe, Skip Yellow
0350	626-E004		13	Mile	6" Thermoplastic Traffic Stripe, Continuous Yellow
0360	626-G002		19,570	Linear Feet	Thermoplastic Detail Stripe, White
0370	626-G003		3,500	Linear Feet	Thermoplastic Detail Stripe, Yellow
0380	626-H004		5,253	Square Feet	Thermoplastic Legend, White
0390	626-H005		5,450	Linear Feet	Thermoplastic Legend, White
0400	627-K001		2,131	Each	Red-Clear Reflective High Performance Raised Markers
0410	627-L001		2,965	Each	Two-Way Yellow Reflective High Performance Raised Markers
0420	907-204-A003		2,150	Square Yard	Geogrid, Type II, Biaxial
0430	907-405-A001	(BA1)	2,800	Ton	Stone Matrix Asphalt, 9.5 mm Mixture
0440	907-405-A002	(BA1)	770	Ton	Stone Matrix Asphalt, 12.5 mm Mixture
0450	907-632-C001		8	Each	Modify Existing Traffic Signal Cabinet Assembly
0452	907-632-D001		5	Each	Solid State Traffic Actuated Controller, Type 1
0460	907-634-B001		2	Each	Traffic Signal Equipment Pole Shaft Extension, 10'
0470	907-634-I004		1	Each	Wood Pole, Class III Height 45'
0480	907-637-F005		50	Linear Feet	Traffic Signal Conduit, Aerial Supported, Type 1, 2"
0482	907-641-A002		33	Each	Signal Stop Bar Radar Vehicle Detection Sensor, Type 2
0484	907-641-B002		16	Each	Signal Advanced Radar Vehicle Detection Sensor, Type 2
0488	907-641-D001		12,375	Linear Feet	Radar Vehicle Detection Cable
0490	907-662-D002		11	Each	Radio Interconnect, Broadband, Short Range HPIRU02
0492	907-662-D002		1	Each	Radio Interconnect, Broadband, Short Range HPIBU02
0500	907-663-A001		8	Each	Network Switch, Type A
0510	907-663-C001		1	Each	Cellular Modem
ALTERNATE GROUP AA NUMBER 1					
0520	304-H001	(GY)	1,400	Cubic Yard	3/4" and Down Crushed Stone Base, LVM
ALTERNATE GROUP AA NUMBER 2					
0530	304-H002	(GY)	1,400	Cubic Yard	Size 610 Crushed Stone Base, LVM
ALTERNATE GROUP AA NUMBER 3					
0540	304-H003	(GY)	1,400	Cubic Yard	Size 825B Crushed Stone Base, LVM
ALTERNATE GROUP BB NUMBER 1					
0550	907-624-A002		574	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Skip White
0560	907-624-B002		2,292	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Continuous White

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
0570	907-624-C001		574	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Skip Yellow
0580	907-624-D002		2,300	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Continuous Yellow
ALTERNATE GROUP BB NUMBER 2					
0590	628-G001		574	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Skip White
0600	628-H001		2,292	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Continuous White
0610	628-I002		574	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Skip Yellow
0620	628-J001		2,300	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Continuous Yellow

