

SECTION 905 -- PROPOSAL (CONTINUED)

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

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

ADDENDUM NO. 1 DATED 1/7/2014 ADDENDUM NO. DATED
 ADDENDUM NO. 2 DATED 01/23/2014 ADDENDUM NO. DATED

Number	Description
1	Revised Table of Contents; Revise NTB No. 4710; Add SP 907-605-3; Revised BidItems, replace same; Amendment EBS Download Required.
2	Revised Table of Contents; Revised NTB No. 4712; Add NTB Nos. 4844, & 4845; Revised Wage Rates; Add SP 907-637-4; Revised BidItems; Revised or Added Plan Sheet Nos. 2 & 17; Amendment EBS Download Required.

TOTAL ADDENDA: 2
 (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.

STP-0029-03(011) / 102556308 Marshall County(ies)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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SECTION 905 - PROPOSAL,
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COMBINATION BID PROPOSAL,
CERTIFICATION OF PERFORMANCE - PRIOR FEDERAL-AID CONTRACTS,
CERTIFICATION REGARDING NON-COLLUSION, DEBARMENT AND SUSPENSION,
SECTION 902 - CONTRACT FORM, AND SECTION 903 - CONTRACT BOND FORMS,
OCR-485.

(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET
OF SECTION 905 AS ADDENDA)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4712

CODE (SP)

DATE: 1/23/2014

SUBJECT: Location & Configuration of OTN Nodes

PROJECT: STP-0029-03(011) / 102556308 – Marshall County

OTN Node

Bidders are hereby advised of the following OTN Node Location and Interface Card configuration for the OTN Node. All OTN equipment and Cards shall be paid under Pay Item 907-660-A.

SR 302 (GOODMAN ROAD) AND I-269 SOUTHBOUND RAMP

Work must be done by a certified technician on the OTN Node technology.

NODE CHASSIS & POWER SUPPLIES		
ITEM	PART NO.	Q
N42C Node Chassis	S30826-B30-X	1
OTN-N42 Steel Chassis	S30826-B 17-X	1
Power Supply 90-264 VAC and 125 VDC	V30812-A5020-A42	2
Power Cord 230 VAC for OTN Nodes	BET:AT306051A	2

COMMON LOGIC CARDS & OPTICAL TRANSCEIVERS		
ITEM	PART NO.	Q
BORA2500-X3M-ETX for N42	S30824-Q124-X103	1
Optical GbE SFP 850nm mm for BORA622- ETX, BORA2500-ETX	V30813-S19-A1	1
Optical GbE SFP 131 0nm sm for BORA622- ETX, BORA2500-ETX	V30813-S20-A1	1
Electrical GbE SFP RJ45 for BORA622-ETX, BORA2500-ETX	V30813-S30-A2	1
BORA2500-ETX for N24	S30824-Q1 06-X 101	1
M-optic module (MM, 850nm)	V30813-S1-A1	1
S2-opticmodule(1550nm)	V30813-S3-A1	1

INTERFACE CARDS		
ITEM	PART NO.	Q
RS485	BE2:FB052429A	1
RS485/422	FB-52429-A	1
ET-100DAE (10+2 S-LAN ports)	S30824-Q123-X101	1
OpticalGbESFP850nmmm	V30813-S19-A1	1
MPEG (4 ports with TTX)	S30824-Q107-X101	1
H.264/AVC Video Card (16 analog ports, inputs and outputs), including streaming	S30824-Q131-X501	1
Blank panel for interface slot	C30165-A9550-B9	*

CABLES FOR INTERFACE CARDS		
ITEM	PART NO.	Q
Fiber Patch Cables (multi-mode) for connection between Type C network Switch and ET-100DAE		1
RS485 Drop Cable	S30827-C18-A30	1

PANEL		
ITEM	PART NO.	Q
19" BNC terminal panel 1HU (16 positions)	V30812-A3010- A147	1

NETWORK MANAGEMENT / MAINTENANCE SOFTWARE		
ITEM	PART NO.	Q
OMS License for one N42	OTN:LIC-N42-2500	1
OMS Network Protocol License		1
OMS Video Switching License		1

*The contractor shall provide the appropriate number of Back panels to cover empty card slots.

Part Numbers are provided for informational purposes and are subject to change by the manufacturer. Any part substitutions due to revision or version changes must be approved by the MDOT Project Manager. All required OTN components shall be included the price bid for Item

No. 907-660-A.

A Communication Hut building will be provided at the interchanges of I-269 & SR 302, as shown in the plans. The Communication Hut building will be paid under pay Item 907-660-B. Alternative layouts may be submitted to ITS Engineer for approval. The following shall be provided as part of the Communications Hut Building:

- Two free standing equipment racks will be provided by the contractor to be placed and secured in the Communications Hut. The Racks shall be a 19-inch rack with four legs and mounting in front and back. The rack provided by the Contractor shall be a minimum 72 inches tall and a minimum of 30 inches deep.
- An Uninterruptible Power Supply (UPS) APC model Smart-UPS 2200, 19-inch rack mount and 120v version shall be provided and installed in each new equipment rack. WEB based rack mounted remote environmental monitoring system with the following components:
 - Web-based monitoring system.
 - Connects to Ethernet network.
 - Includes a built in web server for viewing status, making programming changes, and reviewing data log history.
 - Minimum of eight sensors can be connected to monitor
 - Minimum sensors provided must include sensors for temperature, humidity, physical security, smoke, fire, power, and motion sensor.
 - Include rechargeable battery backup.
 - Alarm notification via e-mail messages and text messages.
 - Built-in. IP device monitoring

A Communication HUT vault will be provided at the interchanges of I-269 & SR 302, as shown in the plans. The Communications Hut Vault will be paid under Pay Item 907-660-B.

Communication Node Installation, Configuration

- All installation and configuration of the OTN nodes, switch, ITS equipment located in the Communication hut buildings, and cabling shall be paid under Pay Item 907-660-A.
- The Contractor shall be responsible for installing the OTN interface cards identified in the table above and configuring them to be integrated to the MDOT ITS network as approved by the ITS Program Manager or his/her designee.
- Work on OTN Node equipment must be done by a technician certified on the OTN Node technology.
- The Type C network Switch will be provided as indicated in Plans under Pay Item Number 907-658-A Network Switch Type C
- The Type C network Switch as specified in special provision 907-658-6 will be connected in the OTN Hut as follows:
 - The contractor is responsible to mount the Type C network switch in one of two 19-inch racks at each Communications Node Hut.
 - Ports 13 through 24 of each 72-fiber termination cabinet will connect in pairs to

the SFP (Optical ports) of the Type C Network Switch via appropriate single mode fiber optic patch cords.

- The Contractor shall submit to the ITS Engineer for approval a cable connection diagram done in Visio and an excel spreadsheet with port to fiber connections one week prior to connecting the type C switch in the HUT building or TMC to the fiber panels or to the OTN equipment.
- The contractor shall provide fiber optic patch cords at least 6 ft in length. In addition, the contractor shall provide 10 spare fiber optic patch cords per OTN node location listed in the table above.
- The Contractor shall connect one of the uplink ports on the Type C network switch to one of the Gigabit optical ports on the 1 00DAE card on the OTN Node at each location as directed by the ITS Engineer.
- The connection between the Type C Network Switch and the OTN card shall be made via a 6-foot multimode fiber optic patch cable.

OTN Node Training. A minimum of 24 hours of on site training, testing, and support shall be provided for OTN Nodes and the MSTraffic network for a minimum of 8 people.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4844

CODE: (SP)

DATE: 1/23/2014

SUBJECT: ITS and Traffic Signal - Construction Note Clarifications

PROJECT: STP-0029-03(011) / 102556308 – Marshall County

Bidders are hereby advised that the following Plan Notes have been revised as stated below.

On Plan Sheets ITS-2, ITS-4, and ITS-7 the following note shall apply:

CONTRACTOR TO PROVIDE MANUFACTURER APPROVED LIGHTNING ARRESTOR FOR EACH RDS UNIT. FOR THOSE RDS UNITS INSTALLED ON THE OPPOSITE SIDE OF THE ROADWAY FROM THE EQUIPMENT CABINET, CONTRACTOR SHALL INSTALL A POLE MOUNTED UTILITY BOX AT THE BASE OF THE POLE BIG ENOUGH TO HOUSE THE LIGHTNING ARRESTOR AND RDS CABLE CONNECTION. CONTRACTOR TO SUBMIT ALL PROPOSED, MANUFACTURER APPROVED EQUIPMENT, TO THE ENGINEER FOR APPROVAL.

On Plan Sheet TSD-6 delete Note #3 is revised as follows:

THE CONTRACTOR SHALL PROVIDE MAST ARM POLE DESIGN CERTIFICATION AND CALCULATIONS AS OUTLINED IN SECTION 722.02 OF THE STANDARD SPECIFICATIONS. DESIGN STANDARD FOR MAST ARMS POLES SHALL BE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS. USE FATIGUE CATEGORY II. DO NOT CONSIDER GALLOPING OR TRUCK FORCES. USE 50 YEAR DESIGN LIFE. WIND AND ICE LOADS VARIABLE BASED UPON MAPS IN THE 2001 AASHTO SPECIFICATION (90 MPH MINIMUM WIND LOAD). USE UPSWEPT MAST ARMS.

On Plan Sheet ITS-GN-1 the following note shall apply.

THE PREFABRICATED STRUCTURE, LISTED AS PAY ITEM 907-660-B002 COMMUNICATION HUT, SHALL BE AT LEAST 10' X 10' IN PLAN DIMENSION UNLESS OTHERWISE SPECIFIED TO BE LARGER.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904- NOTICE TO BIDDERS NO. 4845

CODE: (SP)

DATE: 1/23/2014

SUBJECT: ITS Pay Item

PROJECT: STP-0029-03(011) / 102556308 – Marshall County

Bidders are advised that the Pay Item 907-637-A001 Equipment Cabinet, Type B is not included in the Plan Summary of Quantities. The quantity has been added to the Bidsheets.

Bidders are also advised that the Plan Quantity for Pay Item 666-B038 Electric Cable, Underground in Conduit, THHN, AWG #4, 3 Conductor is incorrect. The correct quantity is 6072 LF and has been corrected in the Bidsheets.

Bidders are further advised that Note #16 on Plan Sheet SQ-4 shall be disregarded

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General Decision Number: MS140181 01/03/2014 MS181

Superseded General Decision Number: MS20130181

State: Mississippi

Construction Type: Highway

Counties: Marshall and Tate Counties in Mississippi.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number Publication Date
 0 01/03/2014

* ELEC0474-008 01/07/2013

	Rates	Fringes
ELECTRICIAN.....	\$ 24.30	11.46

* SUMS2008-142 09/04/2008

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 13.00	0.39
CEMENT MASON/CONCRETE FINISHER...	\$ 12.85	0.39
LABORER: Common or General.....	\$ 8.00	0.00
LABORER: Pipelayer.....	\$ 10.17	0.00
OPERATOR: Backhoe.....	\$ 9.00	0.00
OPERATOR: Broom/Sweeper.....	\$ 8.00	0.00
OPERATOR: Bulldozer.....	\$ 9.00	0.00
OPERATOR: Grader/Blade.....	\$ 11.67	0.00
OPERATOR: Mechanic.....	\$ 13.00	0.00
OPERATOR: Piledriver.....	\$ 12.50	1.23
OPERATOR: Roller.....	\$ 10.00	0.00
OPERATOR: Scraper.....	\$ 10.00	0.00
TRUCK DRIVER.....	\$ 9.46	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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 Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

 The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

 WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
 Wage and Hour Division
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-637-4

CODE: (SP)

DATE: 11/21/2012

SUBJECT: ITS Equipment Cabinets

Section 637, Equipment Cabinets, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in total Section 637 beginning on page 479, and substitute the following:

SECTION 907-637--ITS EQUIPMENT CABINETS

907.637.01--Description. This Section specifies the minimum requirements for equipment cabinets furnished and installed for Mississippi Intelligent Transportation Projects. The cabinet will provide a protective outdoor housing enclosure in which to install field hardware required for ITS devices. Major elements of the equipment cabinet include the cabinet housing and equipment mounting hardware, interior wiring and termination facilities, power supplies, electrical accessories and field installation. Work also includes making modifications to existing ITS cabinets in accordance with the plans, specials provisions, Notice to Bidders and contract documents.

907-637.02--Materials.

907-637.02.1--Blank.

907-637.02.2--Equipment And Materials. The Contractor shall furnish Only new equipment and materials as follows.

- 1) Furnish equipment cabinets and integral materials recommended by the manufacturers for outside plant use and the intended application. This requirement includes wiring and electrical materials and configurations (including connector pin-outs) that are wholly or partially related to the field device applications (CCTV, RDS, VDS, etc.).
- 2) Furnish and configure equipment cabinets to be installed at locations as shown in the Plans. Furnish and configure all equipment and materials for each specific location as shown in the Plans.
- 3) Provide electrical system and components with UL-listings.
- 4) Unless otherwise specified, provide wire and cable with stranded copper conductors, 75°/90° Celsius wet/dry rated insulation, and sized for the maximum voltage and current in the circuit.

907-637.02.3--Components Specified As Rail-Mounted. Components specified as rail-mounted shall be compliant as follows.

- 1) DIN EN 50022 (NS35) component rails.
- 2) Component rails shall be the perforated type and of sufficient length as to protrude beyond the mounted components for fastening to cabinet panels as specified herein.
- 3) UL 1059.
- 4) UL 486E.
- 5) NEMA ISC-4.
- 6) Alternate Rail configurations may be submitted to the Engineer for consideration and approval.

907-637.02.4--Terminal Blocks and Component Terminals. Terminal Blocks and Component Terminals shall meet the following.

- 1) Shall be nickel-plated copper, copper alloy or brass.
- 2) Terminal blocks shall have voltage and current ratings greater than the ratings of the wires that are terminated, be able to terminate wires from #8 AWG to #1/0 AWG wiring and shall be assembled into housing enclosures such that all exposed surfaces are touch-safe. Conductor fastening screws shall be captive. Terminal block housings shall be colored as follows:
 - a. 120 VAC line/hot: black
 - b. 120 VAC neutral: white
 - c. 24 VDC positive: red
 - d. 24 VDC negative: gray
 - e. RS485 communications: orange
 - f. Ground: green or green/yellow

907-637.02.5--Door Locks. Door Locks shall meet the following.

- 1) Provide door locks for all cabinet doors, keyed to MDOT standard Corbin No. 15481RS lock keyed to be operated with a traffic industry conventional No. 2 Key, Corbin No. 1R6380 made from heavy-duty blanks.
- 2) Provide two keys with each cabinet.

907-637.02.6--Labels. Labels shall be provided with agency name, device name and ID labels on all cabinets. Labels shall meet the following minimum requirements:

- 1) Labels shall be flat black lettering on a reflective white background. Lettering shall be a minimum of 1 inch in height.
- 2) Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO M268 Type 1.
- 3) The agency name labels shall be "MDOT ITS" in one continuous adhesive sheet.
- 4) The device ID labels shall include the device name as an acronym and a hyphen, and shall be one continuous adhesive sheet. Device name acronyms are "CCTV-", "RDS-", "VDS-" or "DMS-".
- 5) The device ID shall be numerals corresponding to the location and shall be installed adjacent to the acronym sheet. Multiple device IDs of the same type shall be on the same line separated with a space. Examples: "CCTV-73", "RDS-219 220", "VDS-303 304".

- 6) Labels shall be installed along the top of the cabinet door (front cabinet door on Type B cabinets), with MDOT ITS label at the top and the device ID labels immediately underneath.

Provide a voltage label on all cabinets or enclosures in accordance with the NEC labeling requirements. Voltage labels shall meet the following minimum requirements:

- 1) Labels shall be flat black lettering on a reflective yellow background. Lettering shall be a minimum of 1 inch in height.
- 2) Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO M268 Type 1.
- 3) Labels shall include the voltages entering the cabinet and shall be one continuous adhesive sheet. Examples are "120VAC" or "24VDC".
- 4) Labels shall be installed on all cabinet doors.

907-637.02.7--Type A Cabinet. Type A cabinets shall meet the following.

- 1) All Type A cabinets shall be identical in manufacture and assembly, capable of supporting Radar Detection System units.
- 2) Provide a Type A cabinet intended for outdoor use with a minimum NEMA 3R rating.
- 3) The cabinet enclosure shall be manufactured from 0.125-inch aluminum.
- 4) The cabinet shall provide a minimum of one ventilation louver on at least two sides. Any louver opening greater than 3/16 inch in any dimension shall be screened to prevent insect entry.
- 5) The cabinet shall be intended for strapped pole-mounting; provide all mounting hardware necessary including 1/2-inch stainless steel mounting straps.
- 6) Provide a Type A cabinet enclosure with dimensions of 18 inches (H) by 14 inches (W) by 8 inches (D) with a tolerance of +/- 0.25 inches.
- 7) Cabinet door shall reveal the entire front opening of the cabinet for accessibility. The hinge shall be designed to prevent the door from sagging.
- 8) Include a single-piece 0.125-inch aluminum back panel covering no less than 90% of the cabinet back wall. Back panel shall be affixed to the enclosure with threaded fasteners and shall be removable from the enclosure with hand tools only and without requirement to remove the cabinet door, mounting straps, or any other components other than communications or device wiring.
- 9) The cabinet shall be furnished with doorstops, which retain the doors open in a 90 degree and 120 degree positions.
- 10) Provide on the back panel a grounding lug directly bonded to the back panel capable of terminating #6 AWG wire.

907-637.02.7.1--RDS Communications Wiring. RDS communication wiring shall meet the following.

- 1) Component rail physically and electrically fastened to the cabinet back panel.
- 2) Strain relief brackets for the RDS comm. cable(s) and the RDS unit harness cables.

- 3) Parallel-connection single-stage surge suppressors for the four wire RS-485 data signal for the RDS units with integral or separate terminals for a minimum of three RDS comm. Cables.
- 4) Parallel-connection zero-power dissipation surge suppressor for the 12-24VDC power supply for the RDS units with integral or separate terminals for a minimum of three RDS comm. cables and two RDS unit harness cables.
- 5) Connection/jumper wiring between the surge suppressors and the local/remote communications disconnect module(s) shall be of the same conductor size, type, and insulation color as in the RDS comm. cable.

907-637.02.8--Type B Cabinet. Type B cabinets shall meet the following.

- 1) All Type B cabinets (except those at solar power locations) shall be uniform in manufacture and assembly, capable of supporting the field equipment as shown on the plans. As a minimum support is required for two RDS units, one Type A or B network switch, one video encoder, one Type A radio/antenna, RDS comm. cable and fiber drop panel terminations, regardless of the devices shown in the Plans at a specific location.
- 2) A complete Type B cabinet shall be an assembly consisting of a cabinet housing and electrical subsystems.
- 3) Provide a Type B cabinet housing that conforms to the standards for a Type 170 336S (approximate exterior dimensions 46 inches (H) x 24 inches (W) x 23 inches (D)), including standard EIA 19-inch rack cabinet cage, as defined in the latest version of the Caltrans Transportation Electrical Equipment Specifications (TEES). The minimum clear vertical inside dimension of the 19-inch rack for equipment mounting shall be 39.5 inches. Standard cabinet accessories for traffic signal operations, such as controller, power distribution assembly, input/output file and termination panels, and the police panel, are not required as part of this cabinet assembly.

907-637.02.8.1--Hardware. Hardware shall meet the following.

- 1) Provide all mounting hardware necessary for base or pole mounting as shown on the plans. As a minimum provide three (3) 3/4-inch stainless steel mounting straps for pole mounted cabinets.
- 2) Include hooks, welded to the inside of each cabinet door, for hanging a side-opening, opaque, resealable, heavy-duty plastic documentation pouch with metal or hard-plastic reinforced holes for the door hooks. Provide one pouch with each cabinet.
- 3) Include a rack-mounted cabinet sliding storage drawer in accordance with the following:
 - a. Approximate exterior dimensions 1.75 inches (H) x 16 inches (W) x 14 inches (D).
 - b. Telescoping drawer guides to allow full extension from the rack cage.
 - c. Opening storage compartment lid to access storage space for cabinet documentation and other items.
 - d. Supports a weight of 25 lb when extended.
 - e. Non-slip plastic laminate surface attached to the compartment lid which covers a minimum of 90% of the surface area of the lid.
 - f. Mounted in the rack cage with the bottom surface approximately 9 inches above the bottom of the rack cage.

- 4) Includes side panels within the two sides of the rack cabinet cage, inserted and fastened from the inside of the cage. Use side panels fabricated from 0.125 inch 5052 sheet aluminum alloy and sized to the full inside dimensions of the rack cabinet cage. Side panel surfaces for equipment mounting are denoted by cabinet side, with the "right" side being the support pole side, and by upper or lower as related to the sliding storage drawer. Upper right side panel (support pole side of cabinet, above the drawer) and lower left side panel (opposite side from the support pole, below the drawer) are example side panel surface names.
 - a. Includes a 12-inch long DIN rail (for future components) mounted in the horizontal and vertical center of the lower left side panel.

907-637.02.8.2--Electrical Subsystems. Provide Type B cabinet electrical subsystems meeting the following requirements (Note: Type B Cabinets at Solar Power Locations are not required to meet Section 637.05.02 requirements):

- 1) Includes an electrical distribution module comprised of the following DIN rail-mounted components:
 - a. Service entrance terminal block with positions for 120VAC line, neutral, and ground and capable of terminating minimally #6 through #8 AWG wire, located at one end of the mounting rail with an approximately 0.75 inch blank spacer module adjacent to the main cabinet breaker.
- 2) Main cabinet automatic overcurrent 15A circuit breaker that is UL-listed and of the mechanical-magnetic type rated for use from -18° C to 50° C minimum.
- 3) Main cabinet surge suppressor for single-phase 120VAC service entrance, parallel wired with a clamp voltage of approximately 280V and capable of a surge current of at least 20,000 amps.
- 4) Main cabinet filter for power line noise and switching transient suppression, integral to, or separate from and wired to, the main cabinet surge suppressor.
- 5) Electrical distribution terminal block for line and neutral conductors parallel wired to the main cabinet surge suppressor but non-filtered, with a minimum terminating capability of six conductors of #10 to #18 AWG. Label the terminal block as "ACCY POWER".
- 6) Electrical distribution terminal block for line and neutral conductors for circuits on the load/equipment side of the power line filter, with a minimum terminating capability of six conductors of #10 to #18 AWG. Label the block as "EQUIP POWER".
- 7) Electrical distribution terminal block for grounding and bonding conductors located on the same rail but separate from the service entrance terminal block and connected to the entrance ground with a #6 AWG green insulated wire. The grounding block shall have a minimum terminating capability of two #6 AWG conductors and ten #10 to #18 AWG conductors.
- 8) Ground fault interrupt duplex receptacle (NEMA 5-15R) with 2.5A circuit breaker connected to the ACCY POWER distribution block. Permanently affixed to the receptacle, provide two red, orange or green/yellow labels with minimum 0.25 inch lettering with the legend "300 WATTS MAX". This receptacle is for technician use only and shall not be used to power equipment.
- 9) Include two duplex non-GFCI equipment power receptacles (NEMA 5-15R) connected to the EQUIP POWER distribution block mounted on the upper rear corner of the cabinet upper right side panel. Permanently affixed to the receptacle, Provide two red, orange or

green/yellow labels with minimum 0.25 inch lettering with the legend "75 WATTS MAX" permanently affixed to the receptacle.

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

907-637.02.8.3--Lighting Subsystem. Include a cabinet lighting subsystem comprised of the following components:

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

907-637.02.8.4--RDS Communications Subsystem. Where RDS are shown in the plans include DIN rail-mounted components that include the following:

- 1) Nominal 24VDC output power supply, capable of user setting between 23 and 28VDC minimum, with minimum 1A output rating and minimum operating temperature range of -25° C to +70° C. Power supply shall provide terminal facilities for a minimum of three sets of #14 AWG conductors (in the RDS comm cable). Maximum size of the power supply shall be 1 inch (W) X 7 inches (H) X 7 inches (D). Connect the power supply to the EQUIP POWER distribution block for 120VAC input.
- 2) Include interconnection wiring between the RDS communications subsystem and the Terminal Server.
- 3) Surge suppressor for the RS485 data signal, wired between the terminal server and the RDS units shall be provided. The surge suppressor shall protect the 4-wire RS485 data signal with hybrid multi-stage suppression components including gas tube and silicon avalanche diode. The surge suppressor shall have a response time no greater than 1 nanosecond. The surge suppressor shall provide terminal facilities for a minimum of four two-pair cables of #22 AWG conductors.

907-637.02.8.5--CCTV Subsystem. The requirements listed in Subsection 650.2.12 shall be met by installing the required CCTV support equipment in the Type B Cabinet.

907-637.03--Construction Requirements.

907-637.03.1--General. This work shall meet the following general requirements.

- 1) Install and configure cabinets as shown in the Plans and according to manufacturers recommendations, including installations and dimensions given for pole-mounting in relationship to the surrounding grade.
- 2) Bond all cabinets to the pole grounding lug with minimum #6 AWG stranded copper bare or green-insulated cabinet grounding wire. Alternately on existing poles only, bond the

cabinet grounding wire to an existing pole grounding wire with a cast brass or copper alloy threaded compression connector within 4 inches of the existing pole grounding lug.

- 3) Do not install electrical service or electronic devices in the cabinet or connect to the cabinet until ground testing for the pole or structure has been successfully completed and accepted, and the cabinet ground connection has been installed.
- 4) Provide a cabinet wiring and interface diagram to be included in the required hanging, side-opening, able to be resealed opaque, heavy-duty plastic documentation pouch.

907-637.03.2--Type B. Type B cabinets shall meet the following.

- 1) Install and configure equipment in the Type B cabinet in accordance with the requirements for that equipment, including RDS units, CCTV, Type A and B network switches, video encoders, Type A radio/antennas, RDS comm. cables and/or fiber distribution or drop panels.
- 2) Do not install electronic devices in the cabinet until electrical service has been installed and activated, and the cabinet ventilation fan is operational.
- 3) Install network switches and video encoders in the top most area of the cabinet rack. Use the equipment receptacles for power.
- 4) Install supporting equipment/electronics for CCTV on the lower area of the cabinet upper left side panel. Ensure there is no physical or access conflict with the network switch and video encoder. Use the EQUIP POWER distribution block for the power source.
- 5) Install fiber drop panels in a vertical configuration on the lower rear edge of the cabinet upper right side panel.

907-637.03.3--Testing. The Contractor shall conduct a Project Testing Program as required below. All costs associated with the Project Testing Program shall be included in overall contract prices; no separate payment will be made for any testing.

The ITS Engineer, Project Engineer and/or their designee(s) are only responsible for attending and observing each test, and reviewing and approving the Contractor's test results documentation. The ITS Engineer, Project Engineer and/or their designee(s) reserve the right to attend and observe all tests. The Contractor is required to perform the Conditional Acceptance test with the MDOT ITS Engineer or his designee present.

- 1) The Contractor shall conduct a project testing program for all equipment cabinets. The project testing program shall include but is not limited to the specific requirements in this subsection.
- 2) All test results shall confirm physical and performance compliance with this Special Provision.
- 3) Submit all test results documentation to the Engineer within 7 days of completion of the tests. The Engineer will review test documentation.

907-637.03.3.1--Standalone Acceptance Test (SAT). SAT tests shall be as follows.

- 1) Perform a SAT on all equipment cabinets on this project after field installation is complete, including but not limited to all field devices (RDS, CCTV, communications electronics, etc.) to be installed in or connected to that given cabinet.

- 2) A SAT for a given equipment cabinet shall only be performed in conjunction with the SAT for all devices installed in or connected to that given cabinet.
- 3) Visual inspection of installation.
- 4) Inspection of cabinet documentation.
- 5) Functional test of all cabinet equipment, including circuit breaker, receptacles, fan and thermostat, and lights and door switches.
- 6) Measurement of DC power supply operating under full load.

907-637.04--Method of Measurement. Equipment Cabinet of the type specified will be measured per each. . Such measurement shall be inclusive of furnishing and installing the equipment cabinet and all related material and equipment specified in the Plans and this Special Provision, and all labor, system integration, testing, system documentation and miscellaneous materials necessary for a complete and accepted installation. It shall also include but is not limited to the cabinet and all interior materials, mounting hardware foundations, external conduit entrances including conduit bodies and nipples, electrical service and pole grounding terminations.

ITS Equipment Cabinet modifications, complete in place, tested, and accepted, will be measured per each installation. Such measurement shall be inclusive of all materials, mounting hardware, fiber splicing identified in the notice to bidders for each cabinet being modified.

907-637.05--Basis of Payment. Equipment Cabinet and Equipment Cabinet Modifications, measured as prescribed above, will be paid for at the contract unit price per each, which shall be full compensation for the labor, tools, materials, equipment and incidentals necessary to complete the work.

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

- 1) 40% of the contract unit price for delivery of the cabinet housings;
- 2) An additional 40% of the contract unit price for complete installation of equipment cabinet and all interior components, electrical service feed (activated), interior cabinet components, all conduit entrances, grounding connection, and testing;
- 3) An additional 10% of the contract unit price for completion of Stand Alone Site Test of all field devices housed or connected to the equipment cabinet; and
- 4) Final 10% of the contract unit price upon Final System Acceptance.

Payment will be made under:

- 907-637-A: Equipment Cabinet, Type ___ -per each
- 907-637-B: ITS Equipment Cabinet Modifications ___ -per each

Paving approximately 4 miles of SR 304/I-269 from SR 302 to the Tennessee Line, known as Federal Aid Project No. STP-0029-03(011) / 102556308 in Marshall County.

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
					Roadway Items
0010	201-A001		1	Lump Sum	Clearing and Grubbing
0020	202-B005		558	Square Yard	Removal of Asphalt Pavement, All Depths
0030	202-B025		114	Square Yard	Removal of Concrete Paved Ditch
0035	202-B053		500	Linear Feet	Removal of Guard Rail Including Post, Blockouts & Hardware
					Added 01/07/2014
0040	202-B057		1	Each	Removal of Inlets, All Sizes
0050	202-B093		60	Linear Feet	Removal of Curb & Gutter, All Types
0060	202-B102		300	Linear Feet	Removal of Guard Rail
0070	202-B141		6,684	Linear Feet	Removal of Edge Drain
0080	202-B149		5	Mile	Removal of Traffic Stripe
0090	202-B216		42	Square Yard	Removal of Island Pavement, All Types
0100	203-A003	(E)	8,544	Cubic Yard	Unclassified Excavation, FM, AH
0110	203-EX017	(E)	838	Cubic Yard	Borrow Excavation, AH, FME, Class B9
0120	203-EX018	(E)	15,999	Cubic Yard	Borrow Excavation, AH, LVM, Class B9
0130	203-G003	(E)	1,117	Cubic Yard	Excess Excavation, FM, AH
0140	203-G004	(E)	5,000	Cubic Yard	Excess Excavation, LVM, AH
0150	204-A003		600	Square Yard	Geogrid, Type II, Biaxial
0160	206-A001	(S)	201	Cubic Yard	Structure Excavation
0170	209-A004		3,825	Square Yard	Geotextile Stabilization, Type V, Non-Woven
0180	213-C001		88	Ton	Superphosphate
0190	217-A001		135	Square Yard	Ditch Liner
0200	219-A001		5	Thousand Gallon	Watering [\$20.00]
0210	220-A001		32	Acre	Insect Pest Control [\$30.00]
0220	221-A001	(S)	40	Cubic Yard	Portland Cement Concrete Paved Ditch
0230	223-A001		175	Acre	Mowing [\$50.00]
0240	224-A001		118	Square Yard	Soil Reinforcing Mat
0250	234-A001		3,000	Linear Feet	Temporary Silt Fence
0260	321-A001		3	Mile	6" In-Grade Preparation
0270	406-A001		1,683	Square Yard	Cold Milling of Bituminous Pavement, All Depths
0280	423-A001		17	Mile	Rumble Strips, Ground In
0290	501-E001		295	Linear Feet	Expansion Joints, Without Dowels
0300	502-A001	(C)	654	Square Yard	Reinforced Cement Concrete Bridge End Pavement

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
0310	503-C002		390	Linear Feet	Saw Cut, 3-inch
0320	503-C010		580	Linear Feet	Saw Cut, 4-inch
0330	602-A001	(S)	1,207	Pounds	Reinforcing Steel
0340	603-CA002	(S)	172	Linear Feet	18" Reinforced Concrete Pipe, Class III
0350	603-CA003	(S)	76	Linear Feet	24" Reinforced Concrete Pipe, Class III
0360	603-CB002	(S)	1	Each	24" Reinforced Concrete End Section
0370	603-SB044	(S)	1	Each	18" Branch Connections, Stub into Existing Box Culvert
0380	603-SB045	(S)	2	Each	18" Branch Connections, Stub into Existing Inlet
0390	604-A001		488	Pounds	Castings
0400	604-B001		900	Pounds	Gratings
0410	605-J001	(S)	144	Linear Feet	Edge Drain & Edge Drain Outlet/Vent Inspection
0411	605-W001	(GY)	11	Cubic Yard	Filter Material for Combination Storm Drain and/or Underdrains, Type A, FM Added 01/07/2014
0412	605-W002	(GY)	11	Cubic Yard	Filter Material for Combination Storm Drain and/or Underdrains, Type B, FM Added 01/07/2014
0415	605-AA003	(S)	125	Square Yard	Geotextile for Subsurface Drainage, Type III Added 01/07/2014
0420	606-B001		1,638	Linear Feet	Guard Rail, Class A, Type 1
0430	606-C003		4	Each	Guard Rail, Cable Anchor, Type 1
0440	606-D012		7	Each	Guard Rail, Bridge End Section, Type I
0450	606-E002		9	Each	Guard Rail, Terminal End Section, Flared
0460	609-D007	(S)	2,302	Linear Feet	Combination Concrete Curb and Gutter Type 2 Modified
0470	615-A018	(S)	120	Linear Feet	Concrete Bridge End Barrier, 33.5"
0480	616-A001	(S)	1,939	Square Yard	Concrete Median and/or Island Pavement, 4-inch
0490	616-A003	(S)	28	Square Yard	Concrete Median and/or Island Pavement, 10-inch
0500	618-A001		1	Lump Sum	Maintenance of Traffic
0510	619-A1004		7	Mile	Temporary Traffic Stripe, Continuous White, Paint
0520	619-A1007		1,000	Linear Feet	Temporary Traffic Stripe, Continuous White, Type 1 Tape
0530	619-A2004		6	Mile	Temporary Traffic Stripe, Continuous Yellow, Paint
0540	619-A2007		1,000	Linear Feet	Temporary Traffic Stripe, Continuous Yellow, Type 1 Tape
0550	619-A3006		7	Mile	Temporary Traffic Stripe, Skip White
0560	619-D1001		129	Square Feet	Standard Roadside Construction Signs, Less than 10 Square Feet
0570	619-D2001		600	Square Feet	Standard Roadside Construction Signs, 10 Square Feet or More
0580	619-E1001		2	Each	Flashing Arrow Panel, Type C
0590	619-G4001		144	Linear Feet	Barricades, Type III, Single Faced

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
0600	619-G4004		288	Linear Feet	Barricades, Type III, Single Faced, Permanent, Red/White
0610	619-G7001		4	Each	Warning Lights, Type "B"
0620	620-A001		1	Lump Sum	Mobilization
0630	627-K001		971	Each	Red-Clear Reflective High Performance Raised Markers
	Changed 01/07/2014				
0640	627-L001		1,226	Each	Two-Way Yellow Reflective High Performance Raised Markers
	Changed 01/07/2014				
0650	630-A001		121	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.080" Thickness
0660	630-A002		943	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness
0670	630-B001		512	Square Feet	Interstate Directional Signs, Bolted Extruded Aluminum Panels, Ground Mounted
0680	630-C001		165	Linear Feet	Steel U-Section Posts, 2.0 lb/ft
0690	630-C003		163	Linear Feet	Steel U-Section Posts, 3.0 lb/ft
0700	630-D002		224	Linear Feet	Structural Steel Beams, S4 x 7.7
0710	630-D003		47	Linear Feet	Structural Steel Beams, W6 x 9
0720	630-D006		103	Linear Feet	Structural Steel Beams, W8 x 18
0730	630-E001		287	Pounds	Structural Steel Angles & Bars, 3" x 3" x 1/4" Angles
0740	630-E002		148	Pounds	Structural Steel Angles & Bars, 3 1/2" x 3 1/2" x 1/4" Angles
0750	630-E004		1,010	Pounds	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar
0760	630-F001		41	Each	Delineators, Guard Rail, White
0770	630-F002		18	Each	Delineators, Guard Rail, Yellow
0780	630-F003		2	Each	Delineators, Flexible Post Mounted, Crossover, Type I, Green
0790	630-F004		2	Each	Delineators, Flexible Post Mounted, Crossover, Type I, Yellow
0800	630-F005		2	Each	Delineators, Flexible Post Mounted, Crossover, Type II
0810	630-F006		38	Each	Delineators, Post Mounted, Single White
0820	630-F007		9	Each	Delineators, Post Mounted, Single Yellow
0830	630-F008		60	Each	Delineators, Post Mounted, Double White
0840	630-F009		15	Each	Delineators, Post Mounted, Double Yellow
0850	630-G002		6	Each	Type 3 Object Markers, OM-3R or OM-3L, Post Mounted
0860	630-K001		46	Linear Feet	Welded & Seamless Steel Pipe Posts, 3"
0870	630-K002		73	Linear Feet	Welded & Seamless Steel Pipe Posts, 3 1/2"
0880	630-K003		489	Linear Feet	Welded & Seamless Steel Pipe Posts, 4"
0890	630-K004		55	Linear Feet	Welded & Seamless Steel Pipe Posts, 5"
0900	640-A016		4	Each	Traffic Signal Heads, Type 1 LED
0910	640-A017		3	Each	Traffic Signal Heads, Type 2 LED
0920	640-A063		1	Each	Traffic Signal Heads, Type 2U, LED

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
0930	642-A008		1	Each	Solid State Traffic Actuated Controllers, Type 8A
0940	647-A002		2	Each	Pullbox, Type 3
0950	647-A003		19	Each	Pullbox, Type 4
0960	647-A004		17	Each	Pullbox, Type 5
0970	647-A005		25	Each	Pullbox, Type 2
0980	666-B015		425	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 5 Conductor
0990	666-B022		455	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 8, 2 Conductor
1000	666-B028		9,389	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #6, 3 Conductor
1010	666-B037		2,680	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG 1/0, 4 Conductor
1020	666-B038		6,072	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #4, 3 Conductor
	Changed 01/21/2014				
1030	666-B039		1,423	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #10, 3 Conductor
1040	666-B040		12,426	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #8, 3 Conductor
1050	666-B049		1,910	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #10, 2 Conductor
1060	666-B054		570	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 8 Conductor
1070	666-B055		975	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #3/0, 3 Conductor
1080	666-B056		1,690	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #12, 2 Conductor
1090	668-A018		165	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 2"
1100	668-B024		520	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 2"
1110	668-B025		275	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 3"
1120	808-A001	(S)	970	Linear Feet	Joint Preparation
1130	815-A009	(S)	57	Ton	Loose Riprap, Size 300
1140	815-E001	(S)	142	Square Yard	Geotextile under Riprap
1150	907-216-A001		338	Square Yard	Solid Sodding
1160	907-225-A001		32	Acre	Grassing
1170	907-225-B001		96	Ton	Agricultural Limestone
1180	907-225-C001		64	Ton	Mulch, Vegetative Mulch
1190	907-226-A001		32	Acre	Temporary Grassing
1200	907-234-D001		2	Each	Inlet Siltation Guard
1210	907-234-E001		2	Each	Reset Inlet Siltation Guard
1220	907-237-A002		6,000	Linear Feet	Wattles, 12"
1230	907-304-B009	(GT)	7,826	Ton	Granular Material, Class 3, Group D
1240	907-304-B011	(GT)	67,049	Ton	Granular Material, Class 9, Group B
1250	907-307-C003	(M)	71,523	Square Yard	6" Soil-Lime-Water Mixing, Class C
1260	907-307-D001		966	Ton	Lime

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
1270	907-307-S001	(A3)	25,033	Gallon	Bituminous Curing Seal
1280	907-402-A004	(BA1)	3,123	Ton	Open Graded Friction Course, 9.5-mm Mixture
1290	907-402-B001	(A3)	4,259	Gallon	Bituminous Tack Coat
1300	907-403-AA001	(BA1)	8,018	Ton	Stone Matrix Asphalt, 9.5 mm Mixture
1310	907-403-AA002	(BA1)	10,396	Ton	Stone Matrix Asphalt, 12.5 mm Mixture
1320	907-407-A001	(A2)	29,991	Gallon	Asphalt for Tack Coat
	Changed 01/07/2014				
1330	907-413-E001		475	Linear Feet	Sawing and Sealing Transverse Joints in Asphalt Pavement
1340	907-601-B003	(S)	25	Cubic Yard	Class "B" Structural Concrete, Minor Structures
1341	907-605-I001	(S)	144	Linear Feet	Edge Drain Outlets/Vents
	Added 01/21/2014				
1342	907-605-O003	(S)	280	Linear Feet	4" Perforated Sewer Pipe for Underdrains, SDR 23.5
	Added 01/07/2014				
1345	907-605-P003	(S)	90	Linear Feet	4" Non-perforated Sewer Pipe for Underdrains, SDR 23.5
	Added 01/07/2014				
1350	907-619-E3001		2	Each	Changeable Message Sign
1360	907-626-A005		8	Mile	6" Thermoplastic Double Drop Traffic Stripe, Skip White
1370	907-626-C003		8	Mile	6" Thermoplastic Double Drop Edge Stripe, Continuous White
1371	907-626-C008		15,914	Linear Feet	6" Thermoplastic Edge Stripe, Continuous White
	Added 01/07/2014				
1372	907-626-D004		15,720	Linear Feet	6" Thermoplastic Traffic Stripe, Skip Yellow
	Added 01/07/2014				
1375	907-626-E003		16,652	Linear Feet	6" Thermoplastic Traffic Stripe, Continuous Yellow
	Added 01/07/2014				
1380	907-626-F003		8	Mile	6" Thermoplastic Double Drop Edge Stripe, Continuous Yellow
1390	907-626-G004		19,592	Linear Feet	Thermoplastic Detail Stripe, White
	Changed 01/07/2014				
1400	907-626-G005		10,128	Linear Feet	Thermoplastic Detail Stripe, Yellow
1410	907-626-H004		1,024	Linear Feet	Thermoplastic Legend, White
1420	907-626-H005		1,305	Square Feet	Thermoplastic Legend, White
	Changed 01/07/2014				
1430	907-630-M001		1	Lump Sum	Pedestal Sign Support, Assembly No 1, Contractor Designed
1440	907-630-M002		1	Lump Sum	Pedestal Sign Support, Assembly No 2, Contractor Designed
1450	907-630-M003		1	Lump Sum	Pedestal Sign Support, Assembly No 5, Contractor Designed
1460	907-630-M004		1	Lump Sum	Pedestal Sign Support, Assembly No 8, Contractor Designed

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
1465	907-637-A001		7	Each	Equipment Cabinet, Type B
	Added 01/21/2014				
1470	907-639-A001		3	Each	Traffic Signal Equipment Pole, Type 1, Wood
1480	907-639-A119		1	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 80' Arm
1490	907-639-E001		6	Each	Camera Pole with Foundation, 50' Pole
1500	907-639-F001		3	Each	Detector Pole with Foundation, 35' Pole
1510	907-641-C001		1	Each	Signal Radar Detection System
1520	907-641-D001		1	Lump Sum	Signal Radar Detection Training
1530	907-650-A003		6	Each	On Street Video Equipment, PTZ Type
1540	907-656-A002		4	Each	Dynamic Message Sign, Type 2
1550	907-656-B001		1	Lump Sum	Dynamic Message Sign Training
1560	907-657-A001		21,456	Linear Feet	Fiber Optic Cable, 72 SM
1570	907-657-B001		2,180	Linear Feet	Fiber Optic Drop Cable, 12 SM
1580	907-658-A005		10	Each	Network Switch, Type A
1590	907-658-A007		1	Each	Network Switch, Type C
1600	907-658-B001		6	Each	Terminal Server
1610	907-659-A001		1	Lump Sum	Traffic Management Center Modifications
1620	907-659-C001		1	Lump Sum	Traffic Management Center Modifications - Training
1630	907-660-A001		1	Each	OTN Node
1640	907-660-B002		1	Each	Communications Hut
1650	907-660-C001		1	Lump Sum	OTN Node Training
1660	907-662-A001		6	Each	Video Encoder, Type A
1670	907-662-B001				Deleted 01/07/2014
1680	907-662-C001		1	Each	Video Encoder / Decoder Chassis
1690	907-662-E001		6	Each	Video Decoder Card
1700	907-668-E001		27,780	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2"
1710	907-668-E002		1,200	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"
1720	907-668-F001		4,070	Linear Feet	Traffic Signal Conduit Bank, Underground, Drilled or Jacked,Rolled Pipe, 2"
1730	907-670-A001		6	Each	ITS Radar Detection System
1740	907-670-B001		910	Linear Feet	ITS RDS Comm Cable
1750	907-688-C001		1	Each	Traffic Recorder Induction Loop System
1760	907-699-A002		1	Lump Sum	Roadway Construction Stakes
1770	907-823-A001		195	Linear Feet	Preformed Joint Seal, Type I
1780	907-823-A002		290	Linear Feet	Preformed Joint Seal, Type II

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
1790	907-906001		1,040	Hours	Trainees [\$5.00] ALTERNATE GROUP AA NUMBER 1
1800	907-304-F003	(GT)	15,579	Ton	3/4" and Down Crushed Stone Base ALTERNATE GROUP AA NUMBER 2
1810	907-304-F002	(GT)	15,579	Ton	Size 610 Crushed Stone Base ALTERNATE GROUP AA NUMBER 3
1820	907-304-F004	(GT)	15,579	Ton	Size 825B Crushed Stone Base ALTERNATE GROUP BB NUMBER 1
1830	907-308-A001		1,577	Ton	Portland Cement
1840	907-308-B001	(M)	135,556	Square Yard	Soil-Cement-Water Mixing, Optional Mixers, Base
1850	907-308-S001	(A3)	47,445	Gallon	Bituminous Curing Seal ALTERNATE GROUP BB NUMBER 2
1860	907-311-A003	(M)	135,556	Square Yard	Processing Lime and Fly Ash Treated Course, 6" Thick
1870	907-311-B001		1,044	Ton	Lime
1880	907-311-C001		4,173	Ton	Fly Ash, Class C
1890	907-311-S001	(A3)	47,445	Gallon	Bituminous Curing Seal ALTERNATE GROUP CC NUMBER 1
1900	907-308-A001		606	Ton	Portland Cement
1910	907-308-B002	(M)	71,523	Square Yard	Soil-Cement-Water Mixing, Optional Mixers, Design Soil
1920	907-308-S001	(A3)	25,033	Gallon	Bituminous Curing Seal ALTERNATE GROUP CC NUMBER 2
1930	907-311-A003	(M)	71,523	Square Yard	Processing Lime and Fly Ash Treated Course, 6" Thick
1940	907-311-B001		483	Ton	Lime
1950	907-311-C001		1,932	Ton	Fly Ash, Class C
1960	907-311-S001	(A3)	25,033	Gallon	Bituminous Curing Seal ALTERNATE GROUP DD NUMBER 1
1970	907-403-A001	(BA1)	11,394	Ton	Hot Mix Asphalt, HT, 12.5-mm mixture ALTERNATE GROUP DD NUMBER 2
1980	907-403-M010	(BA1)	11,394	Ton	Warm Mix Asphalt, HT, 12.5-mm mixture ALTERNATE GROUP EE NUMBER 1
1990	907-403-A002	(BA1)	15,678	Ton	Hot Mix Asphalt, HT, 19-mm mixture ALTERNATE GROUP EE NUMBER 2
2000	907-403-M011	(BA1)	15,678	Ton	Warm Mix Asphalt, HT, 19-mm mixture ALTERNATE GROUP FF NUMBER 1
2010	907-403-A005	(BA1)	3,915	Ton	Hot Mix Asphalt, HT, 9.5-mm mixture ALTERNATE GROUP FF NUMBER 2

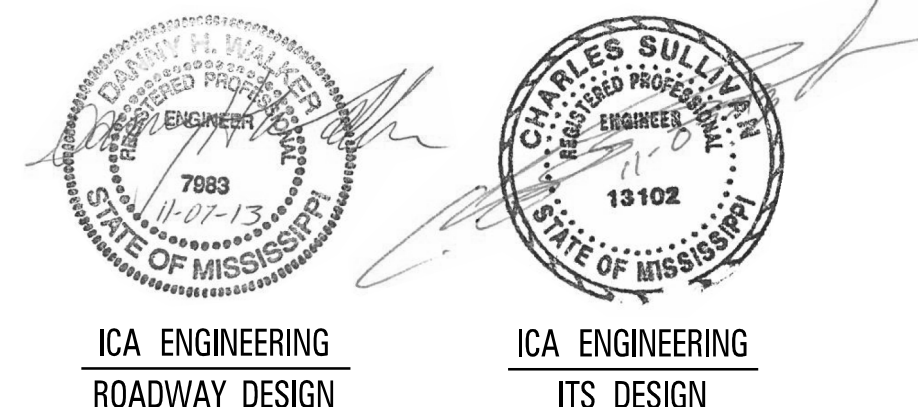
Changed 01/07/2014

Line No.	Item Code	Adj Code	Quantity	Units	Description [Fixed Unit Price]
2020	907-403-M009	(BA1)	3,915	Ton	Warm Mix Asphalt, HT, 9.5-mm mixture
Changed 01/07/2014					
ALTERNATE GROUP GG NUMBER 1					
2030	907-403-A011	(BA1)	5,278	Ton	Hot Mix Asphalt, ST, 12.5-mm mixture
ALTERNATE GROUP GG NUMBER 2					
2040	907-403-M003	(BA1)	5,278	Ton	Warm Mix Asphalt, ST, 12.5-mm mixture
ALTERNATE GROUP HH NUMBER 1					
2050	907-403-A012	(BA1)	16,388	Ton	Hot Mix Asphalt, ST, 19-mm mixture
ALTERNATE GROUP HH NUMBER 2					
2060	907-403-M004	(BA1)	16,388	Ton	Warm Mix Asphalt, ST, 19-mm mixture
ALTERNATE GROUP II NUMBER 1					
2070	907-403-A015	(BA1)	1,808	Ton	Hot Mix Asphalt, ST, 9.5-mm mixture
ALTERNATE GROUP II NUMBER 2					
2080	907-403-M001	(BA1)	1,808	Ton	Warm Mix Asphalt, ST, 9.5-mm mixture
ALTERNATE GROUP JJ NUMBER 1					
2090	907-626-I003		560	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Skip White
2100	907-626-J003		560	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Continuous White
2110	907-626-L001		560	Linear Feet	6" Inverted Profile Thermoplastic Traffic Stripe, Continuous Yellow
ALTERNATE GROUP JJ NUMBER 2					
2120	628-I002		560	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Skip White
2130	628-J002		560	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Continuous White
2140	628-M002		560	Linear Feet	6" High Performance Cold Plastic Traffic Stripe, Continuous Yellow

DESCRIPTION OF SHEET	REVISION DATE	WKG. NO.	SH. NO.	DESCRIPTION OF SHEET	REVISION DATE	WKG. NO.	SH. NO.
TITLE SHEET (1)		-	1	PLAN & PROFILE SHEETS (13)			
DETAILED INDEX & GENERAL NOTES (6)				I-269 (B.O.P. TO 1265+00)		3	29
DETAILED INDEX		DI-1	2	I-269 PROFILE (B.O.P. TO 1265+00)		3A	30
DETAILED INDEX		DI-2	3	INTERCHANGE LAYOUT (I-269 @ SR 302)		3B	31
DETAILED INDEX		DI-3	4	SR 302 (BEGIN CONST. TO 285+00)		3C	32
DETAILED INDEX		DI-4	5	SR 302 (285+00 TO 315+00)		3D	33
GENERAL NOTES		GN-1	6	SR 302 (315+00 TO 345+00)		3E	34
GENERAL NOTES		GN-2	7	SR 302 (345+00 TO END CONST.)		3F	35
				NW RAMP @ SR 302		3G	36
				NE RAMP @ SR 302		3H	37
				I-269 (1265+00 TO 1295+00)		4	38
				I-269 (1295+00 TO 1325+00)		5	39
				I-269 (1325+00 TO 1355+00)		6	40
				I-269 (1355+00 TO E.O.P.)		7	41
TYPICAL SECTION SHEETS (8)				SPECIAL DESIGN SHEETS (76)			
I-269		TS-1	8	CONSTRUCTION SIGNING DETAIL ADVANCE WARNING SIGNS		CSD-1	42
SR 302 OVERLAY		TS-2	9	TRAFFIC CONTROL - GENERAL NOTES, PHASING NOTES & SPECIAL DETAILS		TC-1	43
SR 302 ACCELERATION AND DECELERATION LANES		TS-3	10	TRAFFIC CONTROL - SR 302 PHASE 1-1A		TC-2	44
WIDENING FOR RAMP TAPERS		TS-4	11	TRAFFIC CONTROL - SR 302 PHASE 2		TC-3	45
SR 302 LEFT TURN WIDENING AND MEDIAN CROSSOVERS		TS-5	12	TRAFFIC CONTROL - DRUM PLACEMENT & SHOULDER CLOSURE DETAILS		TCP-SC	46
NE & NW INTERCHANGE RAMPS @ SR 302		TS-6	13	TRAFFIC CONTROL PLAN FOR POSTED SPEED LIMIT OF 65 OR 70 MPH		SDTCP-4	47
CHANNELIZED INTERSECTIONS - NE & NW INTERCHANGE RAMPS @ SR 302		TS-7	14	(INTERSTATES AND OTHER 4-LANE DIVIDED HIGHWAYS) (MEDIAN LANE OR OUTSIDE LANE CLOSURE)			
PAVEMENT AT BRIDGE END SLAB		TS-8	15	(EXTENDED PERIOD)			
				HIGHWAY SIGN AND BARRICADE DETAILS FOR CONSTRUCTION PROJECTS		SDTCP-10	48
				HIGHWAY SIGN AND BARRICADE DETAILS FOR CONSTRUCTION PROJECTS		TCP-P	49
				INTERSECTION DETAIL - NW RAMP AT SR 302		ID-1	50
				INTERSECTION DETAIL - NE RAMP AT SR 302		ID-2	51
				FORM GRADE - NW RAMP AT SR 302		FG-1	52
				FORM GRADE - NE RAMP AT SR 302		FG-2	53
				FORM GRADE - NW RAMP AND NE RAMP AT I-269		FG-3	54
QUANTITY SHEETS (13)							
SUMMARY OF QUANTITIES - (ROADWAY)		SQ-1	16				
SUMMARY OF QUANTITIES - (ROADWAY)		SQ-2	17				
SUMMARY OF QUANTITIES - (ROADWAY)		SQ-3	18				
SUMMARY OF QUANTITIES - (ROADWAY)		SQ-4	19				
ESTIMATED QUANTITIES - (COMB. CURB & GUTTER, & CONC MEDIAN AND /OR ISLAND PAVEMENT)		EQ-1	20				
ESTIMATED QUANTITIES - (EROSION CONTROL ITEMS & GUARDRAIL)		EQ-2	21				
ESTIMATED QUANTITIES - (BRIDGE END PAVEMENT, ESTIMATED EARTHWORK, & PAVEMENT MARKINGS)		EQ-3	22				
ESTIMATED QUANTITIES - (STANDARD ROADSIDE SIGNS)		EQ-4	23				
ESTIMATED QUANTITIES - (STANDARD ROADSIDE SIGN ASSEMBLIES)		EQ-5	24				
ESTIMATED QUANTITIES - (STANDARD ROADSIDE SIGN ASSEMBLIES)		EQ-6	25				
ESTIMATED QUANTITIES - (STANDARD ROADSIDE SIGN ASSEMBLIES)		EQ-7	26				
ESTIMATED QUANTITIES - (TRAFFIC CONTROL DEVICES AND TEMPORARY STRIPING)		EQ-8	27				
ESTIMATED QUANTITIES - (TRAFFIC CONTROL SIGNS)		EQ-9	28				

ICA Engineering, Inc.

PS & E PLANS-DATE 11/12/13		
FMS CON. # 102556 / 308000		
REVISIONS		
DATE	SHEET NO.	BY
12-13-13	4,16,17,19,21,3003-3011,	ICA
	3014-3017,3025	
12-20-13	1,3,7,8,9,13,16-18,22,33,61,62,	ICA
	104,1004,3010,3012-3015	
1-10-14	17	ICA



MISSISSIPPI DEPARTMENT OF TRANSPORTATION	
DETAILED INDEX	
PROJECT NO. STP-0029-03(011) MARSHALL COUNTY	
WORKING NUMBER	DI-1
SHEET NUMBER	2
FILENAME:	di.dgn
DESIGN TEAM	ICA ENG
CHECKED	DW
DATE	11-13

1/10/2014 1:43:34:37 STAMPED.DI_1-1-10-14.DGN

SUMMARY OF QUANTITIES (SHEET 2)

STATE	PROJECT NO.
MISS.	STP-0029-03(011)

PAY ITEM NO.	PAY ITEM	UNIT	PRELIMINARY	FINAL
907-402-B001	BITUMINOUS TACK COAT	GAL	4259	
907-402-A004	OPEN GRADED FRICTION COURSE, 9.5-MM MIXTURE	TON	3123	
907-403-A001	HOT MIX ASPHALT, HT, 12.5-MM MIXTURE	TON	11382	
	OR			
907-403-M010	WARM MIX ASPHALT, HT, 12.5-MM MIXTURE	TON	11,382	
907-403-A002	HOT MIX ASPHALT, HT, 19-MM MIXTURE	TON	15662	
	OR			
907-403-M011	WARM MIX ASPHALT, HT, 19-MM MIXTURE	TON	15662	
907-403-A005	HOT MIX ASPHALT, HT, 9.5-MM MIXTURE	TON	3906	
	OR			
907-403-M009	WARM MIX ASPHALT, HT, 9.5-MM MIXTURE	TON	3906	
907-403-A011	HOT MIX ASPHALT, ST, 12.5-MM MIXTURE	TON	4858	
	OR			
907-403-M003	WARM MIX ASPHALT, ST, 12.5-MM MIXTURE	TON	4858	
907-403-A012	HOT MIX ASPHALT, ST, 19-MM MIXTURE	TON	16316	
	OR			
907-403-M004	WARM MIX ASPHALT, ST, 19-MM MIXTURE	TON	16316	
907-403-A015	HOT MIX ASPHALT, ST, 9.5-MM MIXTURE	TON	1808	
	OR			
907-403-M001	WARM MIX ASPHALT, ST, 9.5-MM MIXTURE	TON	1808	
907-403-AA001	STONE MATRIX ASPHALT, 9.5 MM MIXTURE	TON	8018	
907-403-AA002	STONE MATRIX ASPHALT, 12.5 MM MIXTURE	TON	10396	
406-A001	COLD MILLING OF BITUMINOUS PAVEMENT, ALL DEPTHS	SY	1603	
907-407-A001	ASPHALT FOR TACK COAT	GAL	29935	
907-413-E001	SAWING AND SEALING TRANSVERSE JOINTS IN ASPHALT PAVEMENT	LF	475	
423-A001	RUMBLE STRIPS, GROUND IN	MI	17	
501-E001	EXPANSION JOINTS, WITHOUT DOWELS	LF	295	
502-A001	REINFORCED CEMENT CONCRETE BRIDGE END PAVEMENT	SY	654	
503-C002	SAW CUT, 3-INCH	LF	390	
503-C010	SAW CUT, 4-INCH	LF	580	
907-601-B003	CLASS "B" STRUCTURAL CONCRETE, MINOR STRUCTURES	CY	25	
602-A001	REINFORCING STEEL	LBS	1207	
603-CA002	18" REINFORCED CONCRETE PIPE, CLASS III	LF	172	
603-CA003	24" REINFORCED CONCRETE PIPE, CLASS III	LF	76	
603-CB002	24" REINFORCED CONCRETE END SECTION	EA	1	
603-SB044	18" BRANCH CONNECTIONS, STUB INTO EXISTING BOX CULVERT	EA	1	
603-SB045	18" BRANCH CONNECTIONS, STUB INTO EXISTING INLET	EA	2	
604-A001	CASTINGS	LBS	488	
604-B001	GRATINGS	LBS	900	
605-AA003	GEOTEXTILE FOR SUBSURFACE DRAINAGE, TYPE III	SY	125	
907-605-I001	EDGE DRAIN OUTLETS/VENTS	LF	144	
907-605-O003	4" PERFORATED SEWER PIPE FOR UNDERDRAINS, SDR 23.5	LF	280	
907-605-P003	4" NON-PERFORATED SEWER PIPE FOR UNDERDRAINS, SDR 23.5	LF	90	
605-W001	FILTER MATERIAL FOR COMBINATION STORM DRAIN AND/OR UNDERDRAINS, TYPE A, FM	CY	11	
605-W002	FILTER MATERIAL FOR COMBINATION STORM DRAIN AND/OR UNDERDRAINS, TYPE B, FM	CY	11	
606-B001	GUARD RAIL, CLASS A, TYPE 1	LF	1638	
606-C003	GUARD RAIL, CABLE ANCHOR, TYPE 1	EA	4	
606-D012	GUARD RAIL, BRIDGE END SECTION, TYPE I	EA	7	
606-E002	GUARD RAIL, TERMINAL END SECTION, FLARED	EA	9	
609-D007	COMBINATION CONCRETE CURB AND GUTTER TYPE 2 MODIFIED	LF	2242	
615-A018	CONCRETE BRIDGE END BARRIER, 33.5"	LF	120	
616-A001	CONCRETE MEDIAN AND/OR ISLAND PAVEMENT, 4-INCH	SY	1897	
616-A003	CONCRETE MEDIAN AND/OR ISLAND PAVEMENT, 10-INCH	SY	28	
618-A001	MAINTENANCE OF TRAFFIC	LS	100%	
619-A1004	TEMPORARY TRAFFIC STRIPE, CONTINUOUS WHITE, PAINT	MI	7	
619-A1007	TEMPORARY TRAFFIC STRIPE, CONTINUOUS WHITE, TYPE 1 TAPE	LF	1000	
619-A2004	TEMPORARY TRAFFIC STRIPE, CONTINUOUS YELLOW, PAINT	MI	6	
619-A2007	TEMPORARY TRAFFIC STRIPE, CONTINUOUS YELLOW, TYPE 1 TAPE	LF	1000	
619-A3006	TEMPORARY TRAFFIC STRIPE, SKIP WHITE	MI	7	

- ① INCLUDES ITEMS FOR LANE CLOSURES AS SHOWN ON SDTCP-4 AND TCP-SC.
- ② INCLUDES 7 CU. YDS. FOR STANDARD SIGN FOOTINGS, 9 CU. YDS. FOR DIRECTIONAL SIGN FOOTINGS, 3 CU. YDS TO PLUG EXIST. 18" PIPE @ 298+24 SR 302, 6 CU. YDS. FOR INLETS.
- ③ INCLUDES 884 LBS. FOR DIRECTIONAL SIGN FOOTINGS AND 323 FOR INLETS.
- ④ AS DIRECTED BY ENGINEER.
- ⑤ 9 1/2" THICKNESS.
- ⑥ FLEAT-350, REGENT, SRT-350, ROSS-350, OR APPROVED FLARED EQUAL TO BE INSTALLED FOLLOWING MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL PROVIDE TWO COPIES OF MANUFACTURER'S INSTALLATION DETAILS TO THE PROJECT ENGINEER. THE ENGINEER SHALL KEEP ONE COPY IN PROJECT FILE AND PROVIDE ONE COPY TO DISTRICT MAINTENANCE ENGINEER. THE INSTALLATION DETAILS SHALL BE ENGINEERING DRAWINGS, A MINIMUM OF 11" X 17" IN SIZE. REFLECTIVE ADHESIVE SHEETING WITH ALTERNATING BLACK AND YELLOW STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS) IS REQUIRED OF THE END OF THE TERMINAL SECTION. THE TYPE OF TERMINAL ERECTED SHALL BE ON WRITTEN ON THE BACK OF THE TERMINAL WITH A SANFORD MEANSTREAK WATERPROOF FORMULA PERMANENT MARKING STICK OR SOME OTHER MEANS OF PERMANENT IDENTIFICATION.
- ⑦ ACTUAL HEIGHT OF RAIL IS 33.0"
- ⑧ INCLUDES BRIDGE AT WINGO RD.
- ⑨ ESTIMATED FOR BRIDGE ABUTMENT. TO BE PLACED ADJACENT TO THE BRIDGE ABUTMENT UNDERNEATH THE BRIDGE END PAVEMENT OR AS DIRECTED BY THE ENGINEER.

1-10-14	REVISED PAY ITEM NUMBER	ICA	BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION
12-20-13	ADDED/REVISED PAY ITEMS & NOTE	ICA		
12-13-13	REVISED QUANTITY	ICA		
	REVISION	ICA		

SUMMARY OF QUANTITIES (ROADWAY)

PROJECT NO. STP-0029-03(011)
MARSHALL COUNTY

WORKING NUMBER SQ-2

SHEET NUMBER 17

FILENAME: SQS.DGN

DESIGN TEAM ICA CHECKED DW DATE 11-13

1/10/2014 09:19:51 SQS.DGN