ARKANSAS
STATE HIGHWAY
COMMISSION

PROPOSAL DOCUMENTS OF

FOR THE CONSTRUCTION OF

STATE JOB NO. CA0604

FEDERAL AID PROJECT ACNHPP-9222(14)

MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)

STATE HIGHWAY 67 SECTION 10

IN PULASKI COUNTY

Bound herein are the Supplemental Specifications, Special Provisions, Proposal Documents and Schedule of Items applicable to this proposed construction contract.

Applicable to this proposed construction contract, but not bound herein, are the Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 2014, and the Construction Plans.
Please review Section 102 of the Standard Specifications, 2014 Edition for Bidding Requirements and Conditions. **Mistakes or omissions can be costly.** Important items for you to check are included in, but not limited to, those listed below. This checklist is furnished only to assist you in submitting a proper bid. Check as you read.

☐ Have you contacted ARDOT (pmd@ardot.gov or 501-569-2261) to become an eligible bidder? This is required to submit a bid in the letting and must occur by 4:30pm the day prior to the letting.

☐ Have you acknowledged all Addenda by email or fax?

☐ Is the unit price entered appropriate for the item?

☐ Have you entered a unit price for each bid item except in the case of authorized alternate pay items? (A zero bid ($0.00) is a valid price and will be considered.)

☐ Have you checked the Schedule of Items for various pay items that may have a minimum or maximum unit bid price? (Refer to the Standard Specifications for further information concerning these items)

  ✓ Asphalt Binder

  ✓ Relocating Precast Concrete Barrier

  ✓ Water

  ✓ Mobilization

☐ Have you limited your bid for Mobilization to five percent (5%) of the subtotal?

☐ For Federal-aid projects, did you complete the Certification for Federal aid Contracts?

☐ Prior to submitting your bid, did you check for error messages, and are all the folders “green”?

☐ If submitting a paper copy of the Proposal Guaranty (Bid Bond) is it signed by an officer of your company **AND** the Surety Agent?

☐ Did you ensure your Proposal Guaranty (if you are submitting a paper bond) will arrive prior to the time and date stated on Page 2 of the Proposal Documents?
NOTICE OF NONDISCRIMINATION

The Arkansas Department of Transportation (Department) complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance. Therefore, the Department does not discriminate on the basis of race, sex, color, age, national origin, religion (not applicable as a protected group under the Federal Motor Carrier Safety Administration Title VI Program), disability, Limited English Proficiency (LEP), or low-income status in the admission, access to and treatment in the Department’s programs and activities, as well as the Department’s hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Department’s nondiscrimination policies may be directed to Joanna P. McFadden Section Head – EEO/DBE (ADA/504/Title VI Coordinator), P. O. Box 2261, Little Rock, AR 72203, (501)569-2298, (Voice/TTY 711), or the following email address: joanna.mcfadden@ardot.gov

Free language assistance for Limited English Proficient individuals is available upon request.

This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.
During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

(1) **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(3) **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(4) **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

   (a) Withholding of payments to the contractor under the contract until the contractor complies, and/or

   (b) Cancelling, terminating or suspending a contract, in whole or in part.

(6) **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.
During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

**Pertinent Non-Discrimination Authorities:**


- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);


- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982, (49 USC§ 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);

- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;

- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).
Arkansas Department of Transportation  
Supplemental Specifications and Special Provisions Listing  
State Job Number CA0604

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

ERRATA  
ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS

FHWA-1273  
REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

FHWA-1273  
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS

FHWA-1273  
SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)

FHWA-1273  
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES

FHWA-1273  
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS

FHWA-1273  
SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS

FHWA-1273  
SUPPLEMENT - WAGE RATE DETERMINATION

FHWA-1273  
SUPPLEMENT - TRAINING PROGRAM - JOB CA0604

JOB SP  
CARGO PREFERENCE ACT REQUIREMENTS

JOB SP  
GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

JOB SP  
DISADVANTAGED BUSINESS ENTERPRISE BIDDER’S RESPONSIBILITIES

JOB SP  
PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

JOB SP  
BIDDING REQUIREMENTS AND CONDITIONS

JOB SP  
MANDATORY ELECTRONIC CONTRACT

JOB SP  
ELECTRONIC DOCUMENT MANAGEMENT - CONNECTING ARKANSAS PROGRAM

JOB SP  
ASSESSMENT OF WORKING DAYS - MAINTENANCE OF TRAFFIC

JOB SP  
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JOB SP  
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JOB SP  
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SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS

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PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

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

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

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| JOB SP | EDGE CARD VIDEO PROCESSOR |
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| SS 100-3 | CONTRACTOR’S LICENSE |
| SS 100-4 | DEPARTMENT NAME CHANGE |
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| SS 105-4 | MAINTENANCE DURING CONSTRUCTION |
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| SS 110-1 | PROTECTION OF WATER QUALITY AND WETLANDS |
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The following supplemental specifications and special provisions for this project supplement the standard specifications, edition of 2014. In case of conflict, the supplemental specifications and special provisions shall govern.

SS 306-1 QUALITY CONTROL AND ACCEPTANCE
SS 307-1 CEMENT
SS 308-1 CEMENT
SS 400-1 TACK COATS
SS 400-4 DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
SS 400-5 PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
SS 400-6 LIQUID ANTI-STRIP ADDITIVE
SS 400-7 TRACKLESS TACK
SS 404-3 DESIGN OF ASPHALT MIXTURES
SS 410-1 CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
SS 410-2 DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
SS 410-4 EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
SS 501-2 CEMENT
SS 502-1 WELDED WIRE REINFORCEMENT
SS 505-1 PORTLAND CEMENT CONCRETE DRIVEWAY
SS 600-2 INCIDENTAL CONSTRUCTION
SS 603-1 LANE CLOSURE NOTIFICATION
SS 604-1 RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
SS 604-3 TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
SS 605-1 CONCRETE DITCH PAVING
SS 606-1 PIPE CULVERTS FOR SIDE DRAINS
SS 620-1 MULCH COVER
SS 621-1 FILTER SOCKS
SS 632-1 CONCRETE ISLAND
SS 633-1 CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
SS 634-1 CURBING
SS 700-2 TRAFFIC CONTROL FACILITIES
SS 723-1 GENERAL REQUIREMENTS FOR SIGNS
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SS 800-1 STRUCTURES
SS 802-3 CONCRETE FOR STRUCTURES
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SS 808-1 INSTALLATION OF ELASTOMERIC BEARINGS

Date Estimated: 6/3/2022
Date Revised:
The following supplemental specifications and special provisions for this project supplement the standard specifications, edition of 2014. In case of conflict, the supplemental specifications and special provisions shall govern.

SS 808-2 ELASTOMERIC BEARINGS
Errors noted in the printed book of Standard Specifications for Highway Construction, Edition of 2014, are listed below and this publication is hereby revised as follows:

Page 124: The third sentence of the first paragraph of Subsection 110.03(c) should read: The Engineer will make a decision within 10 business days concerning the necessity or practicability of the request.

Page 195: The sixth paragraph of subsection 303.02 should read: For Classes 1 through 8 materials, the fraction passing the #200 (0.075 mm) sieve shall not be greater than three-fourths of the fraction passing the #40 (0.0425 mm) sieve. For Classes 3 through 8, the fraction passing the #40 (0.425 mm) sieve shall have a liquid limit not greater than 25.

Page 363: In the second paragraph of Subsection 502.02, the reference to ASTM 775 should be replaced by “ASTM A 775”.

Page 636: In the second paragraph of Subsection 730.02, the references to AASHTO M 183 should be replaced with ASTM A36.

Page 637: The last sentence of the second paragraph of Subsection 730.03 should read: All bolts, nuts, and washers shall be galvanized according to AASHTO M 232 or ASTM B 695, Class 40 or 50.

Page 767: In the fourth paragraph of Subsection 807.06(a), the reference to ASTM B595 should be replaced by “ASTM B695”.

Page 841: Subsection 817.04(a) should read: The treatment of lumber and timber shall meet the applicable requirements of the current edition of the AWPA, Standards U1, Commodity Specification E, Use Category UC4C.
I. General

II. Nondiscrimination

III. Nonsegregated Facilities

IV. Davis-Bacon and Related Act Provisions

V. Contract Work Hours and Safety Standards Act Provisions

VI. Subletting or Assigning the Contract

VII. Safety: Accident Prevention

VIII. False Statements Concerning Highway Projects

IX. Implementation of Clean Air Act and Federal Water Pollution Control Act

X. Compliance with Governmentwide Suspension and Debarment Requirements

XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under
this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

“It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training.”

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: “An Equal Opportunity Employer.” All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, the contractor will do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are
applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor’s work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor’s association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualified minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

   a. The contractor shall notify all potential subcontractors and suppliers and lessees of their EEO obligations under this contract.

   b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

   a. The requirements of 49 CFR Part 26 and the State DOT’s U.S. DOT-approved DBE program are incorporated by reference.

   b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

   a. The records kept by the contractor shall document the following:

      (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

      (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

      (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

   b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor
will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of or in connection with Federal projects exceeding $2,000, shall be paid at least in an amount not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conforming to subparagraph 1.b. of this section) and the Davis-Bacon poster (WH-1231) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract, shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

   (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

   (ii) The classification is utilized in the area by the construction industry; and

   (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt so that the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or
will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract on the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages and fringe benefits under the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee’s social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or the successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the pay period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the pay period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-
(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular program. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor’s firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).


V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action and upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.
VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

   a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

      1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
      2) the prime contractor remains responsible for the quality of the work of the leased employees;
      3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
      4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

   b. “Specialty Items” shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:
"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epis.gov), which is compiled by the General Services Administration.
i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.  

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). Lower Tier Covered Transactions refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epis.gov), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the
department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

   b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.
ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

   a. To the extent that qualified persons regularly residing in the area are not available.

   b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

   c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor’s permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.
Elsewhere in this contract are three Supplemental Specifications on Equal Employment Opportunity designated as PR-1273 Supplements. They are (1) Specific Equal Employment Opportunity Responsibilities (23 U.S.C. 140), (2) Equal Employment Opportunity - Goals and Timetables, and (3) Equal Employment Opportunity - Federal Standards. This notice is to clarify the responsibilities for review of compliance and enforcement for these separate supplemental specification requirements.

The first of the Supplemental Specifications cited above covers the requirements for the equal employment opportunity program under Title 23 for which the Arkansas Department of Transportation (ARDOT) is responsible. The ARDOT performs the necessary compliance review and enforcement of this Supplemental Specification which is applicable to all contractors holding Federal-aid highway contracts.

The latter two Supplemental Specifications are for the specific equal opportunity requirements for Executive Order 11246 which is the sole responsibility of the Office of Federal Contract Compliance Programs (OFCCP), Department of Labor. Review and enforcement under these Supplemental Specifications is performed by OFCCP.

OFCCP has, under Paragraph 8 of the EEO Federal Standards Supplemental Specification, recognized the Arkansas AGC Heavy Highway Affirmative Action Plan as meeting the provisions of that Supplemental Specification and Supplemental Specification (2) cited above. With this recognition, those contractors signatory to the AGC Plan have been waived from individual review by OFCCP. However, OFCCP retains the right to review any such contractors whenever circumstances warrant. Also, contractors non-signatory to the AGC Plan are subject to OFCCP review under EO 11246.

ARDOT and OFCCP have agreed to work towards eliminating duplicative reviews on individual contractors; however, each agency may make reviews at any time notwithstanding the cited agreement.
1. General.

a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract Provisions (Form FHWA-1273 and Supplements) and these Special Provisions which are imposed pursuant to Section 140 of Title 23, U.S.C., as established by Section 22 of the Federal-Aid Highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions. The initial measure of the contractor's good faith efforts to comply with these Special Provisions shall be its efforts to meet the goals set forth in the "Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)" for minority and female participation expressed in percentage terms for the contractor's work force in each trade on this project.

b. The contractor will work with the Department and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract.

c. The contractor and all his/her subcontractors holding subcontracts not including material suppliers, of $10,000 or more, will comply with the following minimum specific affirmative action requirements of equal employment opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as contractors and subcontractors.) The contractor will include these requirements in every subcontract of $10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

2. Equal Employment Opportunity Policy.

The contractor will accept as his operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, age, disability, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, age, disability, or national origin. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training.


The contractor will designate and make known to the Department contracting officers an equal employment opportunity officer (hereinafter referred to as the EEO Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

4. Dissemination of Policy.

a. All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

(1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

(2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the contractor's equal employment opportunity obligations within thirty days following their reporting for duty with the contractor.

(3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official in the contractor's procedures for locating and hiring minority and female employees.

b. In order to make the contractor's equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the contractor will take the following actions:

(1) Notices and posters setting forth the contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment, and potential employees.
(2) The contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. Recruitment.

a. When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

b. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants, including, but not limited to, State employment agencies, schools, colleges, and minority group organizations. To meet this requirement, the contractor will, through his EEO Officer, identify sources of potential minority and female employees, and establish with such identified sources procedures whereby minority and female applicants may be referred to the contractor for employment consideration.

In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where implementation of such agreements has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority and female applicants will be discussed with employees.


Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, age, disability, or national origin. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

7. Training and Promotion.

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event the Optional Training Special Provision is provided under this contract, this subparagraph will be superseded by that Special Provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

8. Unions.

If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, age, disability, or national origin.

c. The contractor is to obtain information as to the referral practices and policies of the labor union, except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the State Highway Department and shall set forth what efforts have been made to obtain such information.

a. The contractor’s attention is called to the Special Provision on Disadvantaged Business Enterprises in Federal-Aid Highway Construction.

b. The contractor will use his best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

10. Records and Reports.

a. The contractor will keep such records as are necessary to determine compliance with the contractor’s equal employment opportunity obligations. The records kept by the contractor will be designed to indicate:

   (1) the number of minority and non-minority group members and women employed in each work classification on the project,

   (2) the progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to contractors who rely in whole or in part on unions as a source of their work force),

   (3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and

   (4) the progress and efforts being made in securing the services of Disadvantaged Business Enterprises or subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department and the Federal Highway Administration.

c. The contractors will submit an annual report to the State Highway agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR 1391.


The contractor understands that a designated representative of the Department will periodically review compliance by the contractor with all contractual provisions incorporated pursuant to Executive Order 11246, as amended, and Federal Highway Administration Equal Employment Opportunity Special Provisions implementing the Federal-Aid Highway Act of 1968, where applicable.

In the event that the designated representative of the Department finds that the contractor has failed to comply with any of the aforementioned contractual provisions, he will notify the contractor of this finding in writing. A declaration of default will result in the suspension of all future payments. No declaration of default will be made if the Department and the contractor formally agree to enter into a corrective action plan setting out the specified steps and timetables the contractor will be contractually obligated to perform in order to re-establish his compliance. This corrective action plan, in order to be accepted by the Department, shall include the following mandatory enforcement language:

“If, at any time in the future, the Office of Federal Contract Compliance Programs or the Federal Highway Administration or the Arkansas State Highway Commission or their successor(s) shall believe that (name of contractor) has violated any portion of this agreement, (name of contractor) shall be promptly notified of the fact in writing. This notification shall include a statement of the facts and circumstances relied upon in forming that belief. In addition, the notification shall provide (name of contractor) with 15 days to respond in writing to the notification except where the Office of Federal Contract Compliance Programs, the Federal Highway Administration or the Arkansas State Highway Commission alleges that such delay would result in irreparable injury. It is understood that enforcement proceedings for violation of this agreement may be initiated at any time after the 15-day period has elapsed (or sooner if irreparable injury is alleged) without issuance of a show cause notice.”

“It is recognized that where the Office of Federal Contract Compliance Programs and/or the Federal Highway Administration and/or the Arkansas State Highway Commission believes that (name of contractor) has breached this agreement, evidence regarding the entire scope of (name of contractor) alleged noncompliance from which this agreement resulted, in addition to evidence regarding (name of contractor) alleged violation of this agreement, may be introduced at the enforcement proceeding.”

“Violation of this agreement may subject (name of contractor) to sanctions pursuant to the Arkansas State Highway Commission contract administration procedures. It is further recognized that liability for violation of this agreement may also subject (name of contractor) to sanctions set forth in Section 209 of Executive Order 11246, as amended, and/or appropriate relief.”

The contractor will submit quarterly reports to the Department as a result of any deficiencies cited during an equal employment opportunity compliance review. The reports will indicate the affirmative action steps taken to correct the deficiencies. Instructions for submission of the reports will be furnished by the Equal Employment Opportunity Section.
1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

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<thead>
<tr>
<th>COUNTY</th>
<th>MINORITIES</th>
<th>FEMALES</th>
</tr>
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<tbody>
<tr>
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<td>16.4%</td>
<td>Lee 26.5%</td>
</tr>
<tr>
<td>Ashley</td>
<td>16.4%</td>
<td>Lincoln 16.4%</td>
</tr>
<tr>
<td>Baxter</td>
<td>3.5%</td>
<td>Little River 19.7%</td>
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<td>Benton</td>
<td>3.3%</td>
<td>Logan 6.6%</td>
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<td>Lonoke 16.4%</td>
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<td>Bradley</td>
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<td>Carroll</td>
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<td>Miller 19.7%</td>
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<td>Chicot</td>
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<td>Mississippi 26.5%</td>
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<td>Clark</td>
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<td>16.4%</td>
<td>Nevada 20.2%</td>
</tr>
<tr>
<td>Cleveland</td>
<td>16.4%</td>
<td>Newton 3.3%</td>
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<tr>
<td>Columbia</td>
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<td>Ouachita 16.4%</td>
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<tr>
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<td>Perry 16.4%</td>
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<tr>
<td>Craighead</td>
<td>26.5%</td>
<td>Phillips 26.5%</td>
</tr>
<tr>
<td>Crawford</td>
<td>5.6%</td>
<td>Pike 20.2%</td>
</tr>
<tr>
<td>Crittenden</td>
<td>32.3%</td>
<td>Poinsett 26.5%</td>
</tr>
<tr>
<td>Cross</td>
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<td>Polk 6.6%</td>
</tr>
<tr>
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<td>16.4%</td>
<td>Pope 16.4%</td>
</tr>
<tr>
<td>Desha</td>
<td>16.4%</td>
<td>Prairie 16.4%</td>
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<tr>
<td>Drew</td>
<td>16.4%</td>
<td>Pulaski 15.7%</td>
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<td>Faulkner</td>
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<td>Randolph 26.5%</td>
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<tr>
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<td>Scott 6.6%</td>
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<td>Jefferson</td>
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<tr>
<td>Lawrence</td>
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</table>

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the “covered area” is as described in the Proposal Form for this report.
1. As used in these specifications:
   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   d. "Minority" includes:
      i. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      iii. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      iv. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CPR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The
Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees before the start of work and then not less often than once every six months; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site and then not less often than once every six months. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screening procedures, and test to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between sexes.

o. Document and maintain a record of all solicitations of offers for subcontractors for disadvantaged business
enterprise construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, national origin, age or disability.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Employment Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41CFR60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

16. In addition to the reporting requirements set forth elsewhere in this contract, the contractor and the subcontractors holding subcontracts not including material suppliers, of $10,000 or more, shall submit for every month of July during which work is performed employment data as contained under Form PR-1391 (Appendix C to 23 CFR, Part 230), and in accordance with the instructions included thereon.
## ARKANSAS DEPARTMENT OF TRANSPORTATION
### SUPPLEMENTAL SPECIFICATION

### POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS

<table>
<thead>
<tr>
<th>POSTER OR DOCUMENT REQUIRED</th>
<th>REQUIRED BY</th>
<th>WHERE TO OBTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equal Employment Opportunity is the Law</td>
<td>U.S. Department of Labor (OFCCP)</td>
<td>ARDOT Resident Engineer</td>
</tr>
<tr>
<td>2. &quot;EEO is the Law&quot; Poster Supplement</td>
<td>U.S. Department of Labor (OFCCP)</td>
<td>ARDOT Resident Engineer</td>
</tr>
<tr>
<td>3. Company EEO Policy (prepared by the Contractor on the Company’s letterhead)</td>
<td>U. S. Department of Labor (OFCCP)</td>
<td>Contractor to Prepare:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. EEO policy statement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Notice encouraging employees to refer minority and female applicants for employment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Notice informing employees of an available training program and the entrance requirements.</td>
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<tr>
<td></td>
<td></td>
<td>d. Complaint procedures.</td>
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<tr>
<td></td>
<td></td>
<td>e. Notice identifying company EEO officer by name, including address and telephone number where EEO officer can be located.</td>
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<tr>
<td></td>
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<td>f. Work environment statement.</td>
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<tr>
<td></td>
<td></td>
<td>g. Certification of nonsegregated facilities.</td>
</tr>
<tr>
<td></td>
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<td>h. Notice to unions disseminating EEO commitments and responsibilities and requesting their cooperation.</td>
</tr>
<tr>
<td>4. Current Wage Rates (PR-1273 Supplement) or SS Revisions of PR-1273 for Off-System Projects</td>
<td>U. S. Department of Labor (OFCCP)</td>
<td>Contained in contract. Extra copies may be obtained from Program Management - ARDOT Resident Engineer</td>
</tr>
</tbody>
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### ARKANSAS DEPARTMENT OF TRANSPORTATION
### SUPPLEMENTAL SPECIFICATION

**POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS**

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<tr>
<td>5. “Employee Rights Under the Davis-Bacon Act” (WH 1321)</td>
<td>U. S. Department of Labor</td>
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<td>6. “Employee Rights Under the Davis-Bacon Act” (WH 1321 SPA)</td>
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<td>ARDOT Resident Engineer</td>
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<td>7. Minimum Wage Rate (WH 1088)</td>
<td>U. S. Department of Labor</td>
<td>ARDOT Resident Engineer</td>
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<td>8. “NOTICE” Federal Aid Projects (PR-1022)</td>
<td>U. S. Department of Transportation (FHWA)</td>
<td>ARDOT Resident Engineer</td>
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<td>9. Job Safety and Health Protection OSHA 3165</td>
<td>U. S. Department of Labor (OSHA)</td>
<td>ARDOT Resident Engineer</td>
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<tr>
<td>10. Job Safety and Health Protection OSHA 3167</td>
<td>U. S. Department of Labor (OSHA)</td>
<td>ARDOT Resident Engineer</td>
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<tr>
<td>11. Emergency Phone Numbers of Doctors, Hospital and Ambulance near Job Site for referring injured employees.</td>
<td>U. S. Department of Labor (OSHA)</td>
<td>ARDOT Resident Engineer</td>
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<tr>
<td>12. WCC Form AR-P Workers Compensation Notice and Instructions to Employers and Employees Self-Insurer</td>
<td>State of Arkansas</td>
<td>Insurance Carrier</td>
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<td>Administrator - Self-Insured Group</td>
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### POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS

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<th>POSTER OR DOCUMENT REQUIRED</th>
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<tr>
<td>13. Log and Summary of Occupational Injuries and Illnesses (OSHA Form 300). The Summary portion must be posted from February 1 to April 30, of the year following the year covered by the form.</td>
<td>U. S. Department of Labor (OSHA) Public Law 91-596</td>
<td>ARDOT Resident Engineer</td>
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<tr>
<td>14. Family and Medical Leave Act of 1993 (WH-1420) Employers who employ 50 or more employees for at least 20 workweeks in the current or preceding calendar year.</td>
<td>U. S. Department of Labor</td>
<td>ARDOT Resident Engineer</td>
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<td>15. Employee Polygraph Protection Act (WH-1462)</td>
<td>U. S. Department of Labor</td>
<td>ARDOT Resident Engineer</td>
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<td>16. Your Rights Under USERRA (The Uniformed Services Employment and Reemployment Rights Act)</td>
<td>U. S. Department of Labor</td>
<td>ARDOT Resident Engineer</td>
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<tr>
<td>17. Arkansas Department of Labor Notice to Employer &amp; Employee</td>
<td>Arkansas Department of Labor</td>
<td>ARDOT Resident Engineer</td>
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<tr>
<td>18. Pay Transparency Nondiscrimination Provision</td>
<td>U. S. Department of Labor (OFCCP)</td>
<td>ARDOT Resident Engineer</td>
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"General Decision Number: AR20220171 02/25/2022

Superseded General Decision Number: AR20210171

State: Arkansas

Construction Type: Highway

County: Pulaski County in Arkansas.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

| If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: | . Executive Order 14026 generally applies to the contract. |
| . The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022. |

| If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: | . Executive Order 13658 generally applies to the contract. |
| . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022. |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

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* SUAR2014-043 07/21/2014
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<td>CARPENTER, Includes Form Work</td>
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<tr>
<td>CEMENT MASON/CONCRETE FINISHER</td>
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<tr>
<td>FENCE ERECTOR</td>
<td>$12.69 **</td>
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<tr>
<td>HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine)</td>
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<tr>
<td>HIGHWAY/PARKING LOT STRIPING: Painter</td>
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<tr>
<td>IRONWORKER, REINFORCING</td>
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<tr>
<td>IRONWORKER, STRUCTURAL</td>
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<tr>
<td>LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor</td>
<td>$14.45 **</td>
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<tr>
<td>LABORER: Common or General</td>
<td>$11.36 **</td>
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<tr>
<td>LABORER: Mason Tender - Cement/Concrete</td>
<td>$15.23</td>
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<tr>
<td>LABORER: Pipelayer</td>
<td>$14.33 **</td>
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<td>OPERATOR: Asphalt Spreader</td>
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<td>OPERATOR: Backhoe/Excavator/Trackhoe</td>
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<td>OPERATOR: Bobcat/Skid Steer/Skid Loader</td>
<td>$16.06</td>
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<tr>
<td>OPERATOR: Broom/Sweeper</td>
<td>$12.00 **</td>
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<td>OPERATOR: Bulldozer</td>
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<td>OPERATOR: Crane</td>
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<td>OPERATOR: Distributor</td>
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<td>OPERATOR: Drill</td>
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<td>OPERATOR: Grade Checker</td>
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<td>OPERATOR: Grader/Blade</td>
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<td>OPERATOR: Hydroteeder</td>
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<td>OPERATOR: Loader</td>
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<td>OPERATOR: Mechanic</td>
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<td>OPERATOR: Milling Machine</td>
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<tr>
<td>OPERATOR: Oiler</td>
<td>$18.46</td>
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<tr>
<td>OPERATOR: Paver (Asphalt, Aggregate, and Concrete)</td>
<td>$16.17</td>
</tr>
<tr>
<td>OPERATOR: Post Driver (Guardrail/Fences)</td>
<td>$16.97</td>
</tr>
</tbody>
</table>
OPERATOR: Roller............$ 15.54             0.00
OPERATOR: Scraper............$ 19.31             0.00
OPERATOR: Screed............$ 15.01             0.00
TRAFFIC CONTROL: Flagger....$ 12.67 **          0.00
TRAFFIC CONTROL: 
Laborer-Cones/
Barricades/Barrels -
Setter/Mover/Sweeper........$ 12.95 **          0.00
TRUCK DRIVER: Dump Truck......$ 15.25             0.00
TRUCK DRIVER: Flatbed Truck.....$ 21.03             0.00
TRUCK DRIVER: Lowboy Truck.....$ 17.42             0.00
TRUCK DRIVER: Servicer.......$ 15.90             0.00
TRUCK DRIVER: Water Truck.....$ 14.73 **          0.00
TRUCK DRIVER: Semi/Trailer
Truck........................$ 12.50 **          0.00

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

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

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 a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

**Union Rate Identifiers**

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

**Survey Rate Identifiers**

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

**Union Average Rate Identifiers**

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.
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 National Office because National Office has 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.

END OF GENERAL DECISION"
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB CA0604

TRAINING PROGRAM

This Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities" and implements 23 USC 140(a).

The contractors shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of training slots to be trained under the special provision will be 10. A training slot will consist of 520 to 1040 hours.

As part of the contractor's equal employment opportunity/affirmative action program, training shall be provided as follows:

Training and upgrading of minorities, females and disadvantaged individuals toward journey level status is the primary objective of this Special Provision. A “disadvantaged individual” is an individual that meets the criteria established by the Department of Health and Human Services Poverty Guidelines. Training in classifications such as clerk-typist, secretary, bookkeeper, fire fighter, office engineer, estimator, timekeeper, laborer, or flag person shall not be approved for participation under this Special Provision.

The goals for minority and female participation established in accordance with 41 CFR 60-4 and listed elsewhere in this contract in the FHWA-1273 Supplement titled "Equal Employment Opportunity Goals and Timetables" subtitled "Notice of Requirement for Affirmative Action to Ensure Equal Opportunity (Executive Order 11246)" apply to all training performed by the contractor in the covered area.

In the event that the contractor subcontracts a portion of the contract work, the contractor may not further assign a portion of the training requirements established herein without the consent of the subcontractor(s). Any assignment of these training requirements by the contractor shall be submitted in writing to the Department and an appropriately amended commitment form shall be made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The contractor shall submit to the Department’s Resident Engineer at the preconstruction conference a completed Training Commitment Form (TCF). Refer to Page four of four. The TCF should specify the training program, number of trainees, training classification, estimated starting date and training hours required per training classification to be used to fulfill the training requirement of this Special Provision. The Department must approve this form within 20 working days after the preconstruction conference. The contractor may enroll additional individuals in the training program based on approval of the Resident Engineer and there is sufficient time on the project or subsequent projects to complete the training.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB CA0604

TRAINING PROGRAM

If the contractor fails to submit the TCF at the preconstruction conference, work will not be allowed to start on the project until the TCF is submitted to the Resident Engineer.

Only training programs approved by the Department with FHWA concurrence, the Department of Labor, its agencies, or by a State Apprenticeship Agency or Council recognized by the U.S. Department of Labor may be used to fulfill training requirements under this Special Provision.

The contractor, upon the start of training under the contract, shall provide the Resident Engineer the following information for each trainee:

- Name
- Address
- Telephone Number
- Social Security Number
- Race/Ethnic Origin
- Gender
- Training Classification
- Training Starting Date
- Classification(s) previously trained and date training was completed (if applicable)

The contractor shall furnish to the Resident Engineer the number of training hours the trainee has accumulated each month. A Trainee Termination Form shall be completed when a trainee terminates from the training program. The Resident Engineer shall receive a copy.

The contractor, prior to the start of training, shall provide written notice to each individual to be trained under this Special Provision of that individual's designation as a trainee, the training program and classification under which training will be provided, the length of the training program, and the hourly wage rate to be paid to the trainee. Each month, while enrolled in the training program, the contractor shall inform the trainee of the number of hours accumulated in the training program. Upon graduation, each trainee shall be issued a permanent certification designating the bearer as a graduate journey person of the appropriate training program.

No employee shall be employed as a trainee in any classification in which the employee has successfully completed a training course leading to journey level status or in which the employee has been employed at the journey level. Individuals may be trained a maximum of three times as long as the training is for the purpose of upgrading that individual. If the trainee is enrolled more than once on this project, the trainee will only count as one in satisfying the number that is required to be enrolled in this contract. The contractor shall satisfy this requirement by including appropriate questions in the employee application or by other suitable means. The contractor's findings in each case shall be documented.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB CA0604

TRAINING PROGRAM

Except as otherwise noted below, the contractor will be paid $2.00 per hour of training provided to minorities, women and disadvantaged individuals on this contract under an approved training program. As approved by the Department, payment will be made to the contractor for training persons in excess of the number of hours specified herein. This payment may be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other payment. Payment for off-site training may be made only if the approved training program being used by the contractor includes provisions for off-site training, the trainees are concurrently employed on a Federal-aid project, and the contractor contributes to the cost of the training, provides the instruction to the trainee, or pays the trainee's wage during the off-site training.

No payment will be made due to failure to provide the training required as stated in the approved training program and a good faith effort has not been made to retain the trainee upon completion of the training program, if work continues to be available in that classification. It is normally expected that a trainee will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or until the trainee has completed the training program. It is desired that all trainees be on board for the entire length of the contract. Responsibilities will have been fulfilled under this Special Provision if acceptable training has been provided on the basis of the total number enrolled on the contract for a significant period or the contractor has made a good faith effort to fulfill its obligations.

Trainees will be paid at least 60 percent of the appropriate minimum journey level rate specified in the contract or no less than the common laborer rate for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Special Provision.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB CA0604

TRAINING PROGRAM

TRAINING COMMITMENT FORM

In accordance with this Training Special Provision, the undersigned bidder will provide training in the following crafts and in the amount of hours indicated below.

<table>
<thead>
<tr>
<th>Training Program</th>
<th>Number of Trainees</th>
<th>Training Classification</th>
<th>Estimated Starting Date</th>
<th>Minimum Number of Training Hours Required Per Trainee</th>
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________________________________________

Company Representative

________________________________________

Title

________________________________________

Date
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CARGO PREFERENCE ACT REQUIREMENTS

The requirements of the Cargo Preference Act (CPA) and implementing regulations (46 CFR 381.7(a)-(b)) are applicable to this contract. For additional information, see the FHWA’s web page:

https://www.fhwa.dot.gov/construction/cqit/cargo.cfm
GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

A Disadvantaged Business Enterprise (DBE) goal of 9.0% has been established for this contract. Therefore, the provisions of subsection 103.08 of the Standard Specifications for Highway Construction, Edition of 2014, as revised, apply.

Requirements of Subsection 103.08 apply to successful bidders that are certified by the Department as a DBE. The Prime Contractor must meet the DBE goal. If the Prime Contractor is a Department certified DBE, then the work the Prime Contractor performs with its own forces, as well as work committed to be performed by DBE subcontractors and suppliers will count toward the goal. Therefore, DBE bidders should list work to be performed with its own forces on the DBE Participation form, along with DBE subcontractors to be utilized in achieving the goal.

All payments made to DBE Contractors, suppliers, manufacturers, and/or non-construction service firms must be reported by the Prime Contractor. This includes all payments made to DBE firms utilized in achieving the project goal and DBE firms that perform work that is not listed in the Disadvantaged Business Enterprise Participation form submitted with the executed Contract.

As required by Subsection 103.08(h), the Prime Contractor must use the appropriate DBE Payment Log form included in this Special Provision during the progress of the Contract. Listed below are the instructions on when each form is required to be submitted.

- The Prime DBE Payment Log (page 4) must be submitted by the Prime Contractor when he/she is a certified DBE Contractor and work was performed by their own forces or money was earned by the DBE Prime Contractor for work performed by a Subcontractor during the estimate period.

- The DBE Subcontractor Payment Log (page 3) must be submitted by the Prime Contractor when a Subcontractor is a certified DBE Contractor and work was performed by a Subcontractor or money was earned by a Subcontractor for work performed by a 2nd-tier Subcontractor during the estimate period.

- The 2nd Tier DBE Payment Log (page 5) must be submitted by the Prime Contractor when a 2nd Tier Subcontractor is a certified DBE Contractor and work was performed by a 2nd Tier Subcontractor during the estimate period.

- The 2nd Tier DBE Payment Log (page 5) must be submitted by the Prime Contractor when payments are made to a Department Certified DBE supplier, manufacturer, and/or non-construction service firm by the Prime Contractor or any Subcontractor or 2nd Tier Subcontractor during the estimate period.
ARKANSAS DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION  
JOB CA0604

GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

A separate DBE Payment Log form is required for each DBE firm receiving payments for work completed or services provided during each estimate period. The DBE Payment Log forms, along with instructions for their use, are available on the Department’s website at:

http://ardot.gov/Construc/DBE_Log.xls

All certifications of payments must be received by the Resident Engineer within thirty-five (35) calendar days following the end of each estimate period. Facsimile or scanned copies of the completed original payment log forms are acceptable to fulfill this requirement.

Upon completion of the contract, a final certificate of payments to all DBE firms -- page 6 of this Special Provision -- is required by Subsection 103.08 (h). The final amount paid to each DBE firm shall match the total to date reported on the last DBE payment log submitted for each firm. If necessary, an additional DBE payment log shall be submitted with the certificate of payment itemizing all payments made to DBE firms since the last estimate period. A signed, original of the Final Certificate of Payment must be furnished to the Resident Engineer.
Arkansas Department of Transportation
DBE Subcontractor Payment Log

<table>
<thead>
<tr>
<th>Job Number</th>
<th>Prime Contractor</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Estimate No.</th>
<th>DBE Subcontractor</th>
</tr>
</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Estimate Ending Date</th>
<th>Date Payment Made to DBE</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Item Code*</th>
<th>Item Description</th>
<th>Subcontract Unit Price</th>
<th>2nd Tier Unit Price</th>
<th>Quantity</th>
<th>Value Earned By Subcontractor</th>
</tr>
</thead>
<tbody>
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</table>

* Item Codes for pay items are shown on the estimate voucher

<table>
<thead>
<tr>
<th>Total This Estimate</th>
<th>Retainage Withheld This Estimate</th>
<th>Net Total This Estimate</th>
<th>___% Retainage</th>
<th>Previous Total</th>
<th>Total To Date</th>
</tr>
</thead>
</table>

DBE Payment Log must be received within 35 calendar days of the ending date of the estimate.

The Prime Contractor certifies that the payment listed has been made to the DBE Subcontractor and that the documentation of this payment is available for inspection upon request.

Authorized Signature: __________________________ Title: __________________________
Typed or Printed Name: __________________________ Date: __________________________

Department Use Only

Received By: __________________________
Verified By: __________________________

Received Date: __________________________ Verified Date: __________________________ RE Initials: __________________________

Rev. 11-20-08
Arkansas Department of Transportation
DBE Prime Contractor Payment Log

Job Number ____________________ DBE Prime Contractor _________________________

Estimate No. ______
Estimate Ending Date______________

<table>
<thead>
<tr>
<th>Item Code*</th>
<th>Item Description</th>
<th>Contract Unit Price</th>
<th>Sub Unit Price</th>
<th>Quantity</th>
<th>Value Earned By DBE Prime</th>
</tr>
</thead>
<tbody>
<tr>
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* Item Codes for pay items are shown on the estimate voucher

Total This Estimate

Previous Total

Total To Date

DBE Payment Log must be received within 35 calendar days of the ending date of the estimate.

The Prime Contractor certifies that the information shown above is correct and represents the value earned by the DBE Prime Contractor during the above estimate period.

Authorized Signature_______________________________________ Title ___________________________
Typed or Printed Name_______________________________________ Date _________________________

Department
Use Only

Received By ___________________________ By ___________________________ Verified
Date ___________________________ Date ___________________________ RE Initials

Rev. 2-19-08
# Arkansas Department of Transportation
## DBE 2nd Tier Payment Log

**Job Number** ____________________________  **Prime Contractor** __________________________________________

**Estimate No.** ______  **Subcontractor** __________________________________________

**Estimate Ending Date** ____________  **DBE 2nd Tier Subcontractor** __________________________________________

**Date Payment Made to DBE** __________________________________________

<table>
<thead>
<tr>
<th>Item Code*</th>
<th>Item Description</th>
<th>2nd Tier Unit Price</th>
<th>Quantity</th>
<th>Value Earned by 2nd Tier</th>
</tr>
</thead>
</table>

* Item Codes for pay items are shown on the estimate voucher

**Total This Estimate**

**Retainage Withheld This Estimate**

**Net Total This Estimate**

**Previous Total**

**Total To Date**

**DBE Payment Log must be received within 35 calendar days of the ending date of the estimate.**

The Prime Contractor certifies that the payment listed has been made to the DBE 2nd Tier Subcontractor and that the documentation of this payment is available for inspection upon request.

**Authorized Signature** __________________________________________  **Title** __________________________________________

**Typed or Printed Name** __________________________________________  **Date** __________________________________________

**Department Use Only**

<table>
<thead>
<tr>
<th>Received</th>
<th>Verified</th>
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<tbody>
<tr>
<td>By __________________________  By __________________________</td>
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</table>

**Date** __________________________  **Date** __________________________  **RE Initials** __________________________

Rev. 11-20-08
ARKANSAS DEPARTMENT OF TRANSPORTATION
CERTIFICATE OF PAYMENT

JOB _______________________________ F.A.P. _______________________________

JOB NAME _______________________________

ORIGINAL CONTRACT AMOUNT $_________________ DBE GOAL $_________________ *

DBE CONTRACT GOAL __% (Contract Commitment)

FINAL PAYMENT TO DBEs

The undersigned Contractor on the above mentioned project hereby certifies that the following amount(s) were paid to:

DBE Subcontractor(s) | Amount Paid
---|---

Total Paid to DBEs $__________

Only payments related to work, services, or material actually provided by DBE firms should be shown. Payments under second tier subcontracts from DBE firms to non-DBE firms should not be included. DBE prime Contractors should include the value of work performed by its own forces.

Contractor: _______________________________

Signature: _______________________________

Typed or Printed Name: _______________________________

Title: ______________________ Date: __________

THIS "CERTIFICATE OF PAYMENT" IS TO BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO PROJECT ACCEPTANCE.

* If goal not met, brief explanation: _______________________________

________________________________________________________________________

________________________________________________________________________

Rev. 11-20-08
Arkansas Department of Transportation

Certification to Submit DBE Participation

Job CA0604

By submitting an internet proposal, the bidder irrevocably certifies that an amount equal to or greater than the Disadvantaged Business Enterprise (DBE) Goal established for this project will be performed by certified Disadvantaged Business Enterprise firms and the required DBE participation information will be submitted within 5 calendar days of the date of the bid opening.

Within five (5) calendar days of the date of the bid letting, all bidders shall furnish the required DBE Participation information to the Department on the forms provided to be considered a responsive bid. If a conditional award has been made and the successful bidder has not furnished the required information, the proposal will be rejected and their proposal guaranty forfeited. The proposal guaranty shall become property of the Commission, not as a penalty, but in liquidation of damages, sustained to the DBE Program. Award may then be made to the next lowest, responsive bidder or the work may be re-advertised as the Commission may decide.

Only work, materials, or services that will actually be provided by DBE firms will be credited toward the goal. The DBE firm’s certification must be fully in effect at the letting date.

As an alternative, documentation of Good Faith Efforts to meet the DBE goal may be submitted to the Program Management Division prior to the deadline for proposals to be received.
Section 103 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 103.08(d)(2) is hereby deleted and the following substituted therefore:

(2) Within five (5) calendar days of the date of the bid letting, all bidders shall furnish the required DBE Participation information to the Department on the forms provided to be considered a responsive bid. If a conditional award has been made and the successful bidder has not furnished the required information, the proposal will be rejected and their proposal guaranty forfeited. The proposal guaranty shall become property of the Commission, not as a penalty, but in liquidation of damages, sustained to the DBE Program. Award may then be made to the next lowest, responsive bidder or the work may be re-advertised as the Commission may decide. Furthermore, any subsequent bidder's proposal will be considered non-responsive if their required DBE participation information was not submitted within the required five day period.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

In accordance with the requirements of 2 CFR 200.216, equipment utilized on this project for telecommunications and video surveillance services or equipment shall not be produced by:

1) Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

2) Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
Section 102 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth sentence of the second paragraph of Subsection 102.01 is hereby deleted, and the following substituted therefore:

Prospective bidders may file a questionnaire at any time; however, prospective bidders will not be given authorization to submit a proposal unless a rating has been extended based on an acceptable questionnaire.

The last paragraph of Subsection 102.01 is hereby deleted.

The second sentence of Subsection 102.02 is hereby deleted, and the following substituted therefore:

The Notice to Contractors will contain a description of the proposed work, and information regarding access to proposal documents, plans, specifications, and the amount and nature of the proposal guaranty.

Subsection 102.03 is hereby deleted, renamed Contents of Proposal Documents, and the following substituted therefore:

The proposal documents will state the location and description of the contemplated construction and will show the estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of items. The proposal documents will state the time in which the work must be completed, the amount of the proposal guaranty, and the date and time of the letting of work. The documents will also include any special provisions or requirements that vary from or are not contained in the standard specifications.

All forms included in the proposal documents are considered a part thereof. The plans, specifications, and other documents designated in the proposal documents will be considered a part of the proposal whether included or not.

The first through fourth paragraphs of Subsection 102.04 are hereby deleted, and the following substituted therefore:

To become an eligible bidder, prospective bidders must be registered to bid in Arkansas with Bid Express. Prospective bidders must also contact the Program Management Division at (501) 569-2261 during regular business hours between the date the project is advertised and 4:30 p.m. on the day prior to the scheduled bid opening to request to become eligible to bid specific projects. Only prequalified contractors or their authorized representative may request to become an eligible bidder.
If the prospective bidder’s prequalification rating is not “unlimited”, the bidder shall file a certification with the Department citing all contracts in force and the unfinished value of such work. A prospective bidder will not be allowed to submit a proposal until a certification for the current bidding period is on file and the amount of work the contractor may be allowed to undertake is determined. The contractor’s prequalification rating, less the unfinished value of all contracts in force, will determine the amount of additional work that the contractor may be allowed to undertake. A contractor will not be allowed to submit a proposal on an individual project for which the estimated cost is more than the amount that the contractor may be allowed to undertake, but the contractor will be allowed to submit a proposal on more than one project, providing that the estimated cost of each project is not more than the amount that the contractor may be allowed to undertake. In the event a contractor submits a low bid on more than one project and the aggregate amount is greater than the amount the contractor may be allowed to undertake, the Commission will exercise its discretion in the award of a particular project or projects.

A charge will be assessed for authorization to submit a proposal, paper copies of the proposal documents, and plans issued. These services are provided during regular business hours until 4:30 p.m. on the day prior to the scheduled bid opening at the Arkansas Department of Transportation, 10324 Interstate 30, Little Rock, Arkansas 72209, (501) 569-2261. Payment shall be made at the time services are provided or upon receipt of statement therefore. No refund will be allowed for bids not submitted or for plans or proposal documents returned.

The second sentence of the first paragraph of Subsection 102.06 is hereby deleted, and the following substituted therefore:

The bidder is expected to examine carefully the site of the proposed work, the proposal documents, plans, specifications, supplemental specifications, and special provisions before submitting a proposal.

The first paragraph of Subsection 102.07 is hereby deleted, and the following substituted therefore:

The proposal shall only be submitted through the internet bidding service, Bid Express. The bidder shall specify a unit price in figures for each pay item for which a quantity is given. A unit price of “zero” ($0.00) is a valid price and will be considered. A blank unit price is not considered valid. The unit bid price should not be carried beyond 1 cent ($0.01). Any figures on the unit bid price beyond 1 cent will be dropped.

The second and third paragraphs of Subsection 102.07 are hereby deleted.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

BIDDING REQUIREMENTS AND CONDITIONS

The fifth paragraph of Subsection 102.07 is hereby deleted, and the following substituted therefore:

The bidder’s proposal must be submitted with a digital signature containing the name of the individual, one or more members of the partnership, one or more members or officers of each firm representing a joint venture, or one or more officers of a corporation, or by an agent of the Contractor legally qualified and acceptable to the Department.

The sixth paragraph of Subsection 102.07 is hereby deleted, and the following substituted therefore:

If the proposal is submitted with a digital signature of any person who is not listed in the bidder’s Prequalification Questionnaire (Questionnaire Form) as the individual, as a partner of a partnership, or as an officer of a corporation, authorization for such submittal should be on file with the Department prior to the download of bids. This authorization shall be made before the downloading of bids and be in the form of a Power of Attorney duly executed and signed by an official with power to constitute such authority.

The last sentence of the seventh paragraph of Subsection 102.07 is hereby deleted, and the following substituted therefore:

Those items of Asphalt Binder that are subject to a minimum bid price will bear the note “(Minimum bid price is $120.00 per ton)” within the Schedule of Items of the proposal documents.

The first sentence of the ninth paragraph of Subsection 102.07 is hereby deleted, and the following substituted therefore:

The proposal documents for all federal aid projects will contain a bidders list.

The last sentence of the ninth paragraph of Subsection 102.07 is hereby deleted, and the following substituted therefore:

The information provided will not be used for contract awarding purposes but must be provided before the Contractor will be given authorization to submit proposals for future lettings.

Subsection 102.08 Irregular Proposals is hereby deleted, and the following substituted therefore:

(a) Proposals will be considered irregular and will be rejected for the following reasons:

(1) If the proposal does not contain a unit price for each pay item listed except in the case of authorized alternate pay items.

(2) If the proposal is not digitally signed by an authorized representative of the firm.
(3) If the proposal is not accompanied by the proper proposal guaranty.

(4) If a proposal is received from an individual, firm, partnership, or corporation with an interest, as principal, in another proposal for the same project.

(5) If the proposal is not accompanied by the Certification to Submit DBE Participation.

(b) Proposals will be considered irregular and may be rejected for the following reasons:

(1) If the proposal is not accompanied by a bid schedule and bid schedule narrative as required in the proposal documents.

(2) Unbalanced proposals in which the prices for some items are out of proportion to the reasonable costs representative of those items.

(3) If there are irregularities of any kind that may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.

The first sentence of Subsection 102.09 is hereby deleted and the following substituted therefore:

No proposal will be considered by the Commission unless a guaranty in the form of a bank draft, certified check, or cashier’s check drawn on a solvent bank or trust company, or a bidder’s paper bond executed by an approved surety company has been received by the Program Management Division prior to the download of bids.

The following paragraph is hereby added after the first paragraph of Subsection 102.09:

Electronic bid bonds are allowed. The prospective bidder should verify their bid bond in their proposal prior to submission.

Subsection 102.10 is hereby deleted and the following substituted therefore:

The proposal shall only be submitted through the internet bidding service, Bid Express.

Subsection 102.11 is hereby deleted, and the following substituted therefore:

A bidder may withdraw or modify a proposal after it has been submitted to Bid Express, up to the time set for the deadline for proposals to be received. A proposal may also be withdrawn if the Commission fails to make an award within 40 calendar days after the date of downloading.

Subsection 102.12 is hereby deleted, renamed Downloading of Proposals, and the following substituted therefore:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

BIDDING REQUIREMENTS AND CONDITIONS

Proposals will be downloaded and then posted on the Department’s website at the time and place indicated in the Notice to Contractors.

The last sentence of Subsection 102.15 is hereby deleted, and the following substituted therefore:

In any case, the prospective bidders will be contacted prior to the download of bids.
The Department will only accept and execute an electronic contract for this project through Doc Express, a paperless contracting system. Prospective bidders will need to contact Doc Express to set up an account prior to the bid opening date. The toll-free phone number for Doc Express is 1-888-352-2439 and their website address is [www.docexpress.com](http://www.docexpress.com).

Section 103 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows.

The first sentence of Subsection 103.06(a) is hereby deleted, and the following substituted therefore:

The Contract shall be electronically signed by the successful bidder and electronically submitted to the Program Management Division, Construction Contract Procurement Section, together with the required bonds and proof of liability insurance, within 10 business days after the notice of award has been issued.

Subsection 103.08(d)(3)d. is hereby deleted, and the following substituted therefore:

Documentation of the bidder’s commitment to use a DBE subcontractor whose participation it submits to meet a contract goal; and

Subsection 103.08(d)(3)e. is hereby deleted, and the following substituted therefore:

Document confirmation from the DBE that it is participating in the contract as provided in the Contractor’s commitment.

Subsection 103.08(d)(5) is hereby deleted, and the following substituted therefore:

The preceding information shall be submitted directly to the Arkansas Department of Transportation, Program Management Division, via Doc Express.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ELECTRONIC DOCUMENT MANAGEMENT - CONNECTING ARKANSAS PROGRAM

108.09 Program Management Control System. Electronic Document Management will be used to store relevant documents on a project-basis.

A) Introduction. E-Builder will be used as the Department’s web-based system of record which provides management functionality such as notices, field and office management, and file management including, but not limited to, forms, workflows, and reports. E-Builder serves as a record repository by tracking and storing project records such as contract documents, correspondence, plans and shop drawing submittals, requests for information (RFIs), material test reports, change orders, pay estimates and backup information, nonconformance reports (NCRs), corrective action requests (CARs), prevention action requests (PARs), and other construction submittals from the execution to the close out of a contract. E-Builder produces various reports based on the data stored in the system to help the Department monitor the progress of the project. E-Builder utilizes workflows which correspond with the Connecting Arkansas Program’s (CAP) Master Quality Plan (MQP) which provides procedures and requirements to achieve the standards and quality set forth by the Department and the CAP. The project information within e-Builder may be accessed over the internet 24 hours a day, seven days a week.

B) Contractor’s Obligations. The Contractor, and its designated representatives, shall use e-Builder for all transmittals, submittals, RFIs, and other tasks requested by the Engineer. All project related documents shall be filed in e-Builder including, but not limited to, records of correspondence, schedules, progress reports, requests for information, meeting agendas, meeting minutes, shop drawing submittals, plan revision submittals, change orders, NCRs, CARs, PARs, etc. E-Builder is an official record of all communications between the Contractor and the Department and its representatives. Within 7 days after the Contract is awarded by the Commission, or when notified by the Engineer, the Contractor shall submit a list containing the name, company, role/title, telephone number, and e-mail address of individuals who will attend the training sessions for the use of e-Builder, which will be provided by the Department at no cost. All e-Builder users shall complete the training prior to receiving access; no exceptions will be granted. The Contractor and its designated representatives shall agree to comply with all terms and conditions associated with its use of e-Builder. Any time during the construction, the Contractor may request for additional e-Builder training as a refresher course for existing e-Builder users or to add new individuals who will require use of e-Builder.

C) Equipment. The Contractor shall obtain the necessary computer equipment, at its own expense, to access e-Builder.

Minimum equipment requirements include a broadband internet connection and a Windows XP SP3+ (or higher) or Mac OS X device which supports one of the following internet browsers: Internet Explorer™ 7.0 - 10.0 (32 bit), Google Chrome™ V29, Mozilla Firefox™ current V23, Safari™ for Mac V6.0.4, Safari for iOS™ mobile V6.1 with a
minimum screen resolution of 1024 x 768. Devices should treat e-Builder as a trusted site and be able to install e-Builder's Active-X add-ins. Popup-Blockers should be disabled for the e-Builder site.

In the event that e-Builder becomes inoperable or unavailable to the Contractor, the Contractor shall contact the CAP's e-Builder support staff for assistance and contact the Engineer for directions on processing documentation until e-Builder is operational. Any expenses incurred for extra work will be subsidiary to various items in the Contract. Once e-Builder is in operation again, the Contractor shall upload the required documentation and submit requests through e-Builder.

D) Documentation. All project documents that are uploaded and transmitted via e-Builder must comply with naming conventions described in MQP Procedure QM-09, Records Management Requirements and the following electronic formats:

   a. Manually marked-up documents such as drawings, sketches, correspondence, etc. or documents with non-electronic signatures shall be scanned to Tagged Image Format (TIF) or PDF files with a minimum resolution of 300 dpi using CCITT Group 4 (2d Fax) compression.
   b. Electronic photographs shall be uploaded in Joint Photographic Experts Group (JPEG) or (JPG) files, sized at a minimum resolution of 1024x768 pixels.
   c. Grayscale or color photo images that are scanned shall be saved to JPEG or JPG files with medium to low quality compression at a minimum resolution of 300 dpi.
   d. Product data in PDF files available for download from the Manufacturer's website may be used.

E) Nonconformance of Work. The Engineer will issue a Corrective Action Request (CAR) and corrective action shall be made by the Contractor in accordance with the MQP Procedure QM-05, Corrective and Preventive Action, if the Contractor fails to:

   a. participate in e-Builder training,
   b. use e-Builder to process project documentation,
   c. follow the pertinent procedures and workflows set forth CAP MQP,
   d. provide equipment, or
   e. provide documentation in the format set forth in this Special Provision.

F) Measurement and Payment. The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly but will be subsidiary to various bid items.
DESCRIPTION: To accommodate the off peak lane closure time limits shown in the contract “Maintenance of Traffic” Special Provision, the assessment of Calendar Days or Working Days will be based upon the same conditions as a normal Working Day.

For Calendar Day or Working Day projects, the Contractor shall be permitted to begin work on Sunday evening when the allowable lane closure period begins. Sunday evening shall be the allowable off peak lane closure time defined in the contract “Maintenance of Traffic” Special Provision but not prior to 6:00 p.m. On Working Day projects, time will not be assessed for Sunday. No other work will be allowed on Sunday unless an emergency is declared by the Department.

If the Contractor elects to work Friday and complete work on Saturday in accordance with the contract “Maintenance of Traffic” Special Provision, time will be assessed as appropriate for Saturday.
DESCRIPTION: Section 108, Prosecution and Progress, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 108.02(b)(4) b. Working Day Contract. is hereby deleted and the following is substituted therefor:

b. Calendar Day Contract. Unless the Contractor is otherwise advised in writing, the Work Order for a calendar day contract shall become effective on the fifteenth calendar day following the execution of the Contract by the Department. Should the effective date fall on Sunday, a legal holiday designated in Subsection 101.01 (c), Monday following a holiday on Sunday, or Friday preceding a holiday on Saturday, the effective date shall be the next work day. The written Work Order from the Engineer will follow with the effective date being as specified.

The assessment of contract time will commence when the Contractor begins work or no later than 90 calendar days after the issuance of the work order if the contractor has not commenced work. The contractor will submit written notification to the Engineer five days prior to commencing work.

Subsection 108.02(c) is hereby deleted.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS

Department Standard Specification Section 102.04 and Supplemental Specification 102-2 state that the Department reserves the right to refuse to issue, accept, or consider a proposal:

“If the prospective bidder is the Contractor on a current Contract with the Commission on which Liquidated Damages are being assessed, and there are no pending time extensions warranted to remove the project from Liquidated Damages.”

If the prospective bidder goes into liquidated damages on a current Contract with the Commission during the advertisement period for a letting, the Contractor will be notified seven business days prior to the letting that they will not be allowed to bid in the upcoming letting. This notification will be officially transmitted through Doc Express for the project in liquidated damages and via email.

Upon notification that they will not be allowed to bid in the upcoming letting, the Contractor will be provided an opportunity to request a reconsideration of this decision. This request must be transmitted in the form of a letter through Doc Express and via email to the Department for review within two (2) business days of receipt. The Department will review the reconsideration request and render a decision no later than the Friday prior to the letting.

Please note, a bid may be withdrawn at any time prior to the time specified for the bid letting. If a Contractor has been notified that they will not be allowed to bid, and they do not withdraw their bid, the bid will be considered invalid and rejected.
Section 202 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following requirements are added to Subsection 202.03:

The existing concrete pavement shall be removed in a manner that causes minimal disturbance to the underlying base course or to the adjacent shoulders. Any damage resulting from the construction operations shall be repaired by the Contractor at no cost to the Department.

The Contractor shall schedule and perform the work in a manner that will minimize the exposure of the subgrade to the elements. Drainage shall be maintained at all times as necessary by trenching through the existing shoulder or by other approved methods. If the material is to be recycled as specified herein, asphalt patches and joint seal material shall be removed prior to removing the pavement.

Material removed under this item may be used as aggregates for Aggregate Base Course (Section 303). The aggregate produced from salvaged concrete pavement shall be substantially free of steel reinforcement, an excess of thin or elongated particles, clay lumps, vegetation, asphalt pavement, deleterious substances, and adherent coatings that could be considered injurious for the intended use. The material shall be processed to meet all requirements of Section 303 of the Class specified, except that the requirement for loss by the Los Angeles Test is waived.

Excess and/or unusable material, including reinforcing steel, removed under this item shall become the property of the Contractor and shall be disposed of in accordance with the requirements of Section 202.

Subsection 202.04 is deleted and the following substituted therefor:

202.04 Method of Measurement. Removal of existing portland cement concrete pavement will be measured by the square yard. The quantity will be computed from the measured width and length of pavement removed. No deduction will be made for joints less than 6" in width nor for asphalt patches where at least 4" of existing concrete pavement exists beneath the asphalt patch.

Subsection 202.05 is deleted and the following substituted therefor:

202.05 Basis of Payment. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per square yard for Removing Existing Portland Cement Concrete Pavement, which price shall be full compensation for removing asphalt patches and joint seal material; removing the pavement; maintaining drainage; processing the removed material for use as aggregate in other portions of the work; disposal of excess and unusable material; and for all labor, equipment, tools, and incidentals necessary to complete the work.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

REMOVING EXISTING PORTLAND CEMENT CONCRETE PAVEMENT

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of Existing Portland Cement Concrete Pavement</td>
<td>Square Yard</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

REMOVING AND REINSTALLING SIGNS

DESCRIPTION: This item shall consist of removing and reinstalling signs at the locations shown on the plans or designated by the Engineer, and shall be done in conformity with the plans and in accordance with these specifications.

METHODS: The signs to be removed and reinstalled shall be carefully removed from the posts and reinstalled during construction on a temporary support at the locations shown on the plans or designated by the Engineer, in conformity with the plans and specifications.

The existing posts may be removed, identified and stockpiled, then reinstalled as directed by the Engineer.

METHOD OF MEASUREMENT: Work performed and accepted under this item will be measured by the sign removed and reinstalled.

BASIS OF PAYMENT: Work performed and accepted under this item shall be paid for at the contract unit price each bid for "Removing and Reinstalling Signs", which price shall be full compensation for removing and reinstalling signs, providing a temporary support, removing and reinstalling posts, replacing any damaged or destroyed materials, dismantling and erecting all parts and materials, and for all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removing and Reinstalling Signs</td>
<td>Each</td>
</tr>
</tbody>
</table>
DESCRIPTION: All structures on this project, including new, temporary, and existing bridges and/or culverts, may be the nesting sites of migratory birds. These birds include, but are not limited to, swallows and phoebes. The birds and their habitat are protected under the Migratory Bird Treaty Act. Demolition of or construction activities on bridge and culvert structures that might disrupt egg incubation or feeding and sheltering of young migratory birds shall not occur without written permission from the Engineer.

If construction is planned on bridges or culverts when migratory birds are actively building nests, the Contractor shall utilize Option 1 and/or 2 below to deter birds from nesting to allow construction activities to proceed.

CONSTRUCTION METHODS: Restrictions to the Contractor’s activities shall include, but are not limited to, the following:

1) Demolition of or construction activities on structures (i.e. sand blasting, painting, etc.) will not be permitted when migratory bird nests are considered active without written permission from the Engineer. This normally occurs in Arkansas from March 1 to August 31, but may occur outside of those dates during unusual weather events. The Contractor shall submit to the Engineer details for all work proposed to be performed on the structure from March 1 to August 31, or while nests are active with eggs or young. A determination will be made by the Engineer within 10 business days concerning the possible impacts of the work and will then accept or reject the Contractor’s proposal.

2) **OPTION 1** - The Contractor shall prevent birds from nesting by erecting netting at any time outside of the active nesting season (generally after August 31 to March 1). The Contractor may be allowed to erect netting during the active nesting season if no active nest is present on the bridge or structure. Net openings shall be ½ inch or smaller after installation. Birds that nest despite prevention efforts shall not be removed or disturbed. Netting shall be installed securely and maintained in such a manner that it will not pose a safety hazard.

3) **OPTION 2** – The Contractor may remove inactive nests (those with no eggs or young) via hydro-cleaning or scraping at any time outside of the nesting season (generally after August 31 to March 1). The Contractor will be allowed to scrape or hydro-clean daily to remove any mud or debris placed on the structure by birds attempting to nest, as long as there are no eggs or young in the nests or partial nests. Adult birds cannot be harmed, injured, or harassed in any way except by removal of the unoccupied nests. Exclusionary netting does not have to be used if the Contractor agrees to be diligent and make sure no birds are allowed to nest on the structure.

4) No other methods of deterrence will be permitted without written approval of the Engineer.

5) Migratory birds can build nests very quickly, specifically, in less than two days. If the Contractor allows even one nest on the structure to become active (containing eggs or young birds), they shall be required to stop construction/demolition until the young have voluntarily left the nest (up to six weeks), or get approval through the Engineer from the ArDOT Environmental Division to work around the birds in a manner that does not disrupt incubation, feeding, and/or sheltering of the birds.
6) If no birds are nesting on or in the bridge or culvert structures between March 1 and August 31, a request may be made to the Engineer to allow demolition or construction to proceed. The Engineer will make the final determination concerning the presence or absence of nesting migratory birds within ten business days and will accept or reject the Contractor’s proposal concerning the demolition or construction.

CONTRACTOR NEGLIGENCE: The Contractor will be assessed the amount of any and all fines and penalties assessed against and costs incurred by the Department which are the result of the Contractor’s failure to comply with this Special Provision. The Department will not be responsible for any delays or costs due to the Contractor’s failure to comply with this special provision. The Contractor will not be granted additional compensation or contract time due to noncompliance.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT: All costs incurred in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.
DESCRIPTION: This Special Provision shall be supplementary to Section 210, Excavation and Embankment, of the Standard Specifications, Edition of 2014.

MATERIALS AND CONSTRUCTION REQUIREMENTS: Prior to construction of embankments, the natural ground surface upon which the embankment is to be constructed shall be prepared in accordance with Subsection 210.09 regardless of embankment height. The natural ground surface shall be compacted in accordance with Subsection 210.10 regardless of embankment height. These requirements may be modified by the engineer as conditions justify.

The material furnished for construction of all embankments shall have either a plasticity index less than 15 and a maximum 35% passing the No. 200 sieve or consist of a rocky clay material with a minimum of 55% retained on the No. 4 sieve.

QUALITY CONTROL AND ACCEPTANCE TESTING: Quality control and acceptance sampling and testing shall be performed in accordance with Subsection 210 of the Standard Specifications. The Contractor shall perform acceptance sampling and testing for gradation and plasticity index in addition to, and at the same frequency as density and moisture content. Test for gradation, liquid limit, and plasticity index shall be performed by AASHTO T 11, T 27, T 89, and T 90. If the result of any test shows that the material does not meet the requirements specified herein, unsuitable material shall be removed and replaced at no cost to the Department.

In addition to the required test, the Engineer may require the Contractor to test any location that, by visual inspection appears different from previously approved material. If the material source is consistent, the Engineer may modify the standard lot size for gradation and plasticity index to one test for each soil type encountered.

METHOD OF MEASUREMENT: All embankments constructed as described above will be measured as Compacted Embankment in accordance with Section 210 of the Standard Specifications.

BASIS OF PAYMENT: All embankments constructed as described above shall be paid in accordance with section 210.13 of the Standard Specifications.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
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<tbody>
<tr>
<td>Compacted Embankment</td>
<td>Cubic Yard</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

SOIL STABILIZATION

Section 210 Excavation and Embankment of the Standard Specifications, Edition of 2014, is hereby amended as follows:

Subsection 210.07 Construction Requirements is expanded to include the following:

At locations that the Engineer designates the existing soils to be unstable and cannot be stabilized through normal drying and compactive efforts, the Contractor may, with the approval of the Engineer, utilize the following additives to expedite the drying process:

- Quicklime (dry) meeting the requirements of Subsection 301.03(b), or
- Portland cement and/or fly ash meeting the requirements of Subsection 307.03(b)

The Engineer shall determine which additive will be used. The rate of application shall be determined by trial mixing and shall be approved by the Engineer. The spreading and mixing procedure used shall thoroughly and uniformly disperse the material into the soil. Any procedure that results in excessive loss of material or that does not achieve the desired results shall be immediately discontinued.

Subsection 210.12 Method of Measurement is expanded to include the following:

(g) Soil Stabilization will be measured by the ton of the additive used.

Subsection 210.13 Basis of Payment is expanded to include the following:

(d) Soil Stabilization completed and accepted and measured as provided above will be paid for at the contract unit price bid per ton for Soil Stabilization, which price shall be full compensation for furnishing, hauling and placing the material; for spreading and mixing; and for all labor, equipment, tools and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Stabilization</td>
<td>Ton</td>
</tr>
</tbody>
</table>
Section 215 Trenching and Shoulder Preparation of the Standard Specifications, Edition of 2014, is hereby deleted and the following is substituted therefor:

215.01 DESCRIPTION. This item shall consist of trenching, scarifying, blading, compacting, and otherwise preparing the existing shoulder for asphalt pavement or portland cement concrete pavement widening within the limits shown on the plans and according to these specifications.

215.02 CONSTRUCTION REQUIREMENTS. The existing aggregate base course and bituminous surfacing shall be scarified and trenched to the width and depth shown on the plans or as directed by the Engineer. Any damage to the shoulder or pavement that is to remain shall be repaired as directed by the Engineer at no cost to the Department.

After the trench has been excavated to grade, the bottom of the trench shall be loosened to a minimum depth of 6" (150 mm) below the finished elevation, the entire area within the limits of the trench processed, the material brought within the range of optimum moisture content, compacted, and stabilized to meet the requirements of Subsection 210.10. The Contractor shall perform quality control and acceptance testing in accordance with Subsection 212.02, except that the minimum frequency of acceptance testing for density and moisture shall be one test per each ½ mile (0.8 km) of trench length, regardless of trench width. For trench sections less than ½ mile (0.8 km) in length, a minimum of one test will be taken per continuous trench unless waived by the Engineer after stability is achieved. The material will be considered stable when it will not rut and/or pump under construction operations.

Excavated or excess materials resulting from the operations of trenching and shoulder preparation shall be disposed of as approved by the Engineer. Suitable excess material from the trenching operation may be used as embankment material or placed on the slopes with the approval of the Engineer.

215.03 METHOD OF MEASUREMENT. Trenching and Shoulder Preparation will be measured by the 100-foot (100 m) survey station measured along the centerline of each set of lanes. This measurement will be made to the nearest foot (meter). Separate measurements will be made for the inside and outside shoulders if this work is required on both sides of the lane.

215.04 BASIS OF PAYMENT. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per station (metric station) for Trenching and Shoulder Preparation, which price shall be full compensation for trenching, scarifying, and spreading the material over the slopes; for disposing of the excess material; for recompacting; for performing quality control and acceptance sampling and testing; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>Trenching and Shoulder Preparation</td>
<td>Station (Metric Station)</td>
</tr>
</tbody>
</table>
Joint densities shall be measured directly on, and centered over, the visible joint for butt joints or centered over the wedge for joints constructed using a notched wedge paver attachment. The joint density core samples shall be 6” diameter and should be cut while the lane closure for the paving operation is still in place in order to provide proper traffic control for the coring operation. If the Contractor is unable to cut the cores while the lane closure is still in place, the coring operation must be performed using either a static or moving lane closure as detailed in the plans or MUTCD, and in accordance with any limitations contained in the Contract. The required joint density shall be 89% to 96% of the maximum theoretical density.

The third paragraph of Subsection 410.07, Spreading and Finishing, is hereby deleted and the following is substituted therefor:

The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6” (150 mm), if possible; however, in general, the joint in the top layer shall be at the centerline of the pavement if the roadway comprises two lanes in width, or at lane lines if the roadway is more than two lanes in width. On roadways with a center turn lane, the Contractor may, at his option, elect to place a joint at the crown (i.e., middle of the center turn lane) of the roadway and eliminate the joints on the lane lines of that lane. The slight excess of asphalt at a longitudinal joint, generated by overlapping during placement of an adjacent mat to a previous mat, shall not be scattered across the mat.

The following is added after the last paragraph of Subsection 410.08 Rolling and Density Requirements and Joints:

When the material forming the two sides of a longitudinal joint comes from two different sublots, the theoretical maximum density used as a basis for density calculations shall be the average of the theoretical maximum density for the two sublots.

The following is added after the second sentence of the second paragraph of Subsection 410.09 Acceptance of the Pavement and Adjustments in Payment, (a) General is expanded to include the following:

For longitudinal joint density testing, the standard lot size for acceptance and adjustment in payment will be 12,000 linear feet (3600 meters), with each standard lot divided into four sublots of 3,000 linear feet (900 meters) each. These lengths will apply only to ACHM Final Surface Course areas in which both sides of the longitudinal joint have been formed, including the joints between the travel lanes and acceleration or deceleration lanes, but excluding the longitudinal joint between a shoulder and travel lane which will not be subject to this testing. For longitudinal joint density tests, partial
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lots normally will be not less than 1,200 linear feet (360 meters) nor more than 13,200 linear feet (4000 meters). Cores for ACHM Intermediate Surface shall be cut and tested for density at locations where acceptance cores have been sampled. Results will not be used for Acceptance and Adjustments in Payment but shall be submitted to Department for informational purposes only.

The following is added after the last sentence of the second paragraph of Subsection 410.09, Acceptance of the Pavement and Adjustments in Payment, (a) General:

Field density tests on longitudinal joints shall be performed directly on the joint as soon as possible after placement of the hot lane. The core should be cut while the lane closure for the paving operation is still in place in order to provide proper traffic control for the coring operation. If the Contractor is unable to cut the cores while the lane closure is still in place, the coring operation must be performed using either a static or moving lane closure as detailed in the plans or MUTCD, and in accordance with any limitations contained in the Contract.

The first and second sentences of the third paragraph of Subsection 410.09, Acceptance of the Pavement and Adjustments in Payment, (a) General is hereby deleted and the following substituted therefor:

The Contractor shall obtain and test one sample taken at random from each sublot, including for longitudinal joint density testing. The Department will determine the location for each sample in the sublot by ArDOT Test Method 465.

Subsection 410.09 Acceptance of the Pavement and Adjustments in Payment, (b) Acceptance of the Pavement is hereby modified as follows:

The following is added as the second bullet following the first paragraph:

• The results of tests for the longitudinal joint density in Table 410-2

The following is added after the last paragraph of Subsection 410.09(b)(1):

Acceptance for Longitudinal Joint Density as shown in Table 410-2 will be by lot. Acceptance of a standard longitudinal joint density lot will be based on the average of the five (5) tests performed on the lot. Acceptance of a partial lot will be based on the average of the actual number of tests made on that partial lot.

Incentives or disincentives will be added or deducted from the payment made for each acceptance lot for Longitudinal Joint Density according to Table 410-2.

In addition to the disincentives provided within the table, any lot with density results which average below 88% shall be sealed at no cost to the Department. The entire length of the longitudinal joint within the lot shall be sealed with PG 64-22 asphalt cement. The asphalt cement sealant shall be heated and maintained between 265°F and
LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES

320°F. The sealant shall not be placed if the air temperature is below 40°F, unless otherwise permitted by the Engineer. The joint area of the pavement surface must be clean, dry, and free of any loose material and debris. Cleaning with a power broom may be required. Utilize a pressure applicator with a wand or nozzle capable of applying hot asphalt sealant in a straight and consistent width of 4 inches ±1 inch and thickness of 1/16 inch ± 1/32 inch at specified temperature range and at a minimum rate of 0.013 gallons/linear foot. The center of the sealant band should be placed within 1 inch of the joint. Immediately level high spots with a squeegee or wand. Remove and dispose of excess sealant at no cost to the Department. Re-seal areas of the joint that are inconsistently or not completely covered. Any pavement markings marred by the sealing operation will be replaced at no additional cost to the Department.

TABLE 410-2  
LONGITUDINAL JOINT DENSITY DISINCENTIVE

<table>
<thead>
<tr>
<th>% Gmm</th>
<th>Min.</th>
<th>Max.</th>
<th>$/L.F./Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.0</td>
<td>100</td>
<td>-1.00</td>
<td></td>
</tr>
<tr>
<td>97.0</td>
<td>&lt;98</td>
<td>-0.70</td>
<td></td>
</tr>
<tr>
<td>96.0</td>
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<tr>
<td>95.0</td>
<td>&lt;96</td>
<td>+1.00</td>
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<td>&lt;95</td>
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<td>92.0</td>
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<tr>
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<td>&lt;92</td>
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<td></td>
</tr>
<tr>
<td>90.0</td>
<td>&lt;91</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>89.0</td>
<td>&lt;90</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>88.0</td>
<td>&lt;89</td>
<td>-0.42</td>
<td></td>
</tr>
<tr>
<td>87.0</td>
<td>&lt;88</td>
<td>-0.77</td>
<td></td>
</tr>
<tr>
<td>86.0</td>
<td>&lt;87</td>
<td>-0.98</td>
<td></td>
</tr>
<tr>
<td>&lt;86</td>
<td></td>
<td>-1.00</td>
<td></td>
</tr>
</tbody>
</table>
Division 106 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added to **Subsection 106.04, Acceptance of Materials:**

All ACHM Contractor Acceptance Tests shall be submitted electronically by use of the ACHM Microsoft Excel Spreadsheet for Contractors/Suppliers and on paper.

The ACHM Microsoft Excel Spreadsheet for Contractors/Suppliers can be downloaded from the following website: [http://www.ardot.gov/contracts/contractor_information/contractor.aspx](http://www.ardot.gov/contracts/contractor_information/contractor.aspx).

To download this file and the supporting documentation, click on the link labeled Contractor_ACHM.exe which is listed under User Help File and Utilities on the website noted above.


The preferred method of transmitting the file is to e-mail the completed ACHM Microsoft Excel Spreadsheet for Contractors/Suppliers to the Department's ACHM Plant Inspector assigned to the project. It is also acceptable to transmit the file by Compact Disk (CD) or other electronic device. Regardless of the method of transmission used, the signed paper acceptance tests must be provided to the Resident Engineer.

Any questions or issues arising from the use of this file should be referred to the Resident Engineer.
A price adjustment clause is included in this Contract to provide additional compensation to the Contractor or a credit to the Department for fluctuations in asphalt binder prices. This price adjustment is dependent upon a change in the average price of asphalt binder which results in an increase or decrease in the price of products utilized on this project.

**Payment.** Payment will be made to the Contractor for monthly fluctuation in the price of asphalt binder used in performing the applicable items of Asphalt Concrete Hot Mix Ultrathin Bonded Wearing Course work as listed in the table below when the asphalt binder price fluctuates from the base price defined below. Payment may be positive, negative, or nonexistent depending on the circumstances. Payments or deductions for the asphalt binder price adjustment will be included in the Contractors current estimates, and the payment or deduction authorized for each estimate will be based upon the quantities for applicable items of work.

The Asphalt Binder Price Adjustment will be a dollar amount paid as compensation to the Contractor, or as a credit to the Department as reflected on the Current (or Final) Estimate Summary Report as Payment Adjustments.

**Asphalt Binder Price Adjustment (ABPA).** The Asphalt Binder Price Adjustment (ABPA) for the current estimate will be computed according to the following formula:

\[
ABPA = Q \times D \times \left(\frac{IQP}{100}\right)
\]

Where

- **ABPA** = Asphalt binder price adjustment, in dollars;
- **Q** = Quantities paid for the applicable items on the current estimate; tons of mix for ACHM items or square yards for Ultrathin Bonded Wearing Course;
- **D** = Allowable price differential, in dollars;
- **IQP** = Item Quantity Percent, Quantity of Indexed Material per unit of the applicable item on the current estimate.

The above formula will be applied to each individual payment of the applicable item. When the Current (or Final) estimate is generated, the sum of these individual adjustments will be included as a Payment Adjustment.

### Applicable Items of Work

<table>
<thead>
<tr>
<th>ITEM OF WORK</th>
<th>SPECIFICATION NUMBER</th>
<th>ITEM QUANTITY PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Binder in ACHM Base Course</td>
<td>405</td>
<td>100</td>
</tr>
<tr>
<td>Asphalt Binder in ACHM Binder Course</td>
<td>406</td>
<td>100</td>
</tr>
<tr>
<td>Asphalt Binder in ACHM Surface Course</td>
<td>407</td>
<td>100</td>
</tr>
<tr>
<td>Ultrathin Bonded Wearing Course (Type B)</td>
<td>SP</td>
<td>0.16</td>
</tr>
<tr>
<td>Ultrathin Bonded Wearing Course (Type C)</td>
<td>SP</td>
<td>0.19</td>
</tr>
</tbody>
</table>
The terms of this Special Provision will apply only to the items listed in this Special Provision table above. No other items on the contract will be subject to the terms of this Special Provision.

The allowable price differential, “D”, for the current estimate will be computed according to the following formula:

\[ D = P - P(b) \]

\( P \), the asphalt binder current price in dollars per ton, is the Monthly Asphalt Binder Price Index for the month in which the payment entry is entered.

\( P(b) \), the asphalt binder base price in dollars per ton, is the Monthly Asphalt Binder Price Index for the month in which the bids for the work were received.

**Asphalt Binder Index Determination.** The Monthly Asphalt Binder Price Index will be determined by calculating the average for performance-graded binder using the Selling Price of PG 64-22 paving grade. The monthly asphalt binder price will be an average of five asphalt binder prices. The prices will be furnished by the four largest asphalt binder suppliers in the State of Arkansas as determined by the previous calendar year. For an asphalt supplier to be included in the asphalt binder price index they must supply at least ten percent of the asphalt binder in Arkansas. The final component in the asphalt binder price index will be the Asphalt Weekly Monitor® furnished by Poten & Partners, Inc. The issue of the Asphalt Weekly Monitor® used will be for the last full week in the previous month received by the Department prior to the first day of the index month. The four largest suppliers included in the asphalt binder price index shall furnish the Department with their average price on the Thursday before the Friday of the last full week of the month. If any supplier fails to submit a price by this deadline, that supplier’s price will not be included in the asphalt binder price index for that month.

**Supplemental Items Subject to Adjustment.** Items included in the contract that are listed in the table above are subject to adjustment in accordance with this provision, regardless of any amount of overrun to the plan quantity. Any new items of work added to the Contract by supplemental agreement that are listed in the table above will be subject to the asphalt binder price adjustments in accordance with this provision. The base asphalt binder price, \( P(b) \), for any newly added eligible items will be the same \( P(b) \) as the eligible items in the Contract, and the new unit price established by supplemental agreement will be determined accordingly.

**Viewing Asphalt Binder Price Index.** Historical asphalt binder price index values will be available in the “Asphalt Binder Index Report” document located on the ARDOT website at [https://ardot.gov/divisions/construction/construction-information/](https://ardot.gov/divisions/construction/construction-information/) under Asphalt Binder Information.
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JOB NO. CA0604

PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

Division 400 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 410.09(b)(1) is deleted and the following substituted therefor:

(1) Properties in Table 410-1. Acceptance with respect to the properties listed in Table 410-1 will be by lot. Acceptance of a standard lot will be based on the Percent Within Limits (PWL). Acceptance of a sublot will be based on the results of the test(s) performed on samples from that sublot.

In Table 410-1, the term “mix design value” refers to the value shown in the accepted mix design.

(a) Percent Within Limits (PWL). The PWL analysis will only be performed on lots when 3 or more tests are performed on the lot. Acceptance of a partial lot with 2 or less tests performed on the lot will be based on the lot average of the actual number of tests made on that partial lot. The Percent Within Limits (PWL) will be based on the mean, standard deviation and quality index of each lot’s test results. The PWL and Pay Factors (PF) for the lot will be calculated as described below. The upper PWL (PWL_U) and lower PWL (PWL_L) are determined from the Table 410-2. Variables used in the calculations are as follows:

- \( x_i \) = individual test value (sublot)
- \( x_a \) = arithmetic mean of the individual test values
- \( n \) = number of tests (sublots)
- \( s \) = sample standard deviation
- \( Q_U \) = upper quality index
- \( USL \) = upper compliance limit (from Table 410-1)
- \( Q_L \) = lower quality index
- \( LSL \) = lower compliance limit (from Table 410-1)

(1) Calculate the arithmetic mean (\( x_a \)) of the test values:

\[ x_a = \frac{\Sigma x_i}{n} \]

(2) Calculate the sample standard deviation(s):

\[ s = \left[ \frac{\Sigma ((x_i - x_a)^2)}{(n - 1)} \right]^{1/2} \]

(3) Calculate the upper quality index (\( Q_U \)):

\[ Q_U = \frac{(USL - x_a)}{s} \]
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(4) Calculate the lower quality index ($Q_L$):

$$Q_L = \frac{x_a - LSL}{s}$$

(5) From Table 410-2, use $Q_U$ to determine the upper PWL ($PWL_U$).

(6) From Table 410-2, use $Q_L$ to determine the lower PWL ($PWL_L$).

(7) If $Q_U$ or $Q_L$ is a negative number, then calculate the percent within limits for $Q_U$ or $Q_L$ as follows: enter Table 410-2 with the positive value of $Q_U$ or $Q_L$ and obtain the corresponding percent within limits for the proper sample size. Subtract this number from 100.00. The resulting number is the value to be used in the next step (Step 8) for the calculation of quality level.

(8) Calculate the total percent within limits:

$$PWL = (PWL_U + PWL_L) - 100$$

(9) Calculate the Pay Factor (PF) for each property. Pay Factors will be calculated by using the following equation:

$$PF = 55 + 0.5 \times PWL$$

(10) Calculate the Total Pay Factor ($PF_T$) for the lot. The $PF_T$ will be calculated based on the individual Pay Factors (PF) with the following weighting applied: 20 percent asphalt binder content (PAB), 35 percent air voids (PAV), 10 percent voids in mineral aggregate (VMA) and 35 percent density (PC). Calculate the $PF_T$ by using the following formula, where the PF for each property is determined in Step (9):

$$PF_T = (0.20) PF_{PAB} + (0.35) PF_{PAV} + (0.10) PF_{VMA} + (0.35) PF_{PC}$$

All lots of material with a $PF_T$ less than 80.00 shall be removed and replaced with acceptable material by the contractor at no cost to the Department. Payment for sections where removal and replacement is required will be withheld or recovered, and released after replacement has been acceptably completed. The quantity for payment will be the original quantity and measurement of the quantity used in replacement operations will not be considered. Sampling and testing of the replacement material will be according to Subsection 410.09(a). Acceptance of the replacement material will be determined using the acceptance criteria for Partial lots with two (2) or less tests as outlined below.

For any single property except density, if the result of the single test in a sublot falls outside the limits shown as “Sublot Rejection Limits”, that sublot shall be removed and replaced at no cost to the Department. In the sublot containing the Department’s lot test, if the result of either
the Contractor's sublot test or the Department's lot test fall outside the sublot rejection limits, the two tests will be averaged and the average of the two test results used to determine acceptance or rejection of the sublot. Sampling and testing of the replacement material will be according to Subsection 410.09(a). Acceptance of the replacement material will be determined using the acceptance criteria for Partial lots with two (2) or less tests as outlined below.

For density, if a test for a sublot is more than 2.0 percentage points above or below the compliance limits for the type of mix, that sublot will be further evaluated as follows:

Two additional density tests will be performed by the Department on a statistically random basis within that sublot, except that only one additional test will be performed if the sublot contains both a Contractor sublot test and a Department lot test. If the average of the three tests is within 2.0 percentage points above or below the compliance limits, the sublot will be accepted. The average of the three test results will be used as a single value to compute the arithmetic mean of the test values for the lot for the PWL calculations.

If the average is outside the sublot rejection limits, the sublot shall be removed and replaced at no cost to the Department. Sampling and testing of the replacement material will be according to Subsection 410.09(a). Acceptance of the replacement material will be determined using the acceptance criteria for Partial lots with two (2) or less tests as outlined below.

(b) Partial lots with two (2) or less tests. Acceptance of a partial lot will be based on the average of the actual number of tests made on that partial lot.

When the average of the test results for a partial lot fall within the range shown in Table 410-1 as “Compliance Limits”, the partial lot will be accepted with no price reduction for those properties. If the average of the test results for a partial lot for any single property listed in the table falls within the limits shown as “Price Reduction Limits”, the material may be left in place at a reduced price as specified in Subsection 410.09(d). If the average of the test results for a partial lot for any single property listed in the table falls outside the limits shows as “Lot Rejection Limits”, the entire partial lot shall be removed and replaced at no cost to the Department. Sampling and testing of the replacement material will be according to Subsection 410.09(a).

For any single property except density, if the result of the single test in a sublot falls outside the limits shown as “Sublot Rejection Limits”, that sublot shall be removed and replaced at no cost to the Department. In the sublot containing the Department's lot test, if the result of either the Contractor's sublot test or the Department's lot test fall outside the sublot rejection limits, the two tests will be averaged and the average of the two test results used to determine acceptance or rejection of the sublot. The average of the two test results will also be used as a single value to compute the average for the partial lot for acceptance and adjustment.
PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

For density, if a test for a sublot is more than 2.0 percentage points above or below the specification limits for the type of mix, that sublot will be further evaluated as follows:

Two additional density tests will be performed by the Department on a statistically random basis within that sublot, except that only one additional test will be performed if the sublot contains both a Contractor sublot test and a Department lot test. If the average of the three tests is within 2.0 percentage points above or below the compliance limits, the sublot will be accepted. The average of the three test results will be used as a single value to compute the average for acceptance and adjustment of the partial lot.

If the average is outside the sublot rejection limits, the sublot shall be removed and replaced at no cost to the Department. In that case, the result of a density test performed on the replacement material will be used to calculate the average for acceptance and adjustment of the partial lot.

Subsection 410.09(b)(2), Pavement Smoothness, is hereby deleted and the following substituted therefor:

(2) Pavement Smoothness. (a) Binder and Intermediate Surface Courses. For full payment, the finished surface of binder and intermediate surface courses and any areas of final surface courses that have less than 4" (100 mm) of ACHM over the existing pavement (excluding leveling), when checked with a 10’ (3 m) straight-edge parallel to the centerline, shall show no variation more than 3/16" (5 mm) for binder courses and not more than 1/8" (3 mm) for surface courses. When surface tests indicate surface tolerances do not meet these requirements, changes to the paving operations shall be made before beginning the next day’s operations.

All transverse joints shall be straight-edged immediately following rolling of the joint. Paving will not continue until the transverse joint meets the applicable surface tolerances shown above.

Areas not meeting the above surface test requirements shall be corrected by skin patching, or other methods that would provide the required smoothness. All corrective work and material necessary to correct surface tolerance deficiencies shall be at no cost to the Department.

(b) Final Surface Courses on Mainlanes and Ramps. The finished pavement surface, except as noted in paragraph (a) above and ramps, acceleration/deceleration lanes, shoulders, islands, tapers, or other incidentals, will be determined by the use of the Inertial Profiler (IP) and the International Roughness Index (IRI). Pavement smoothness will be determined for each lane by obtaining the IRI for the left and right wheel paths in an individual lane. After the final ACHM surface has been placed, the averaged IRI value will be used to determine areas requiring correction and applicable payment price adjustments.
(c) Equipment and Operator. The Contractor shall furnish a properly calibrated and documented Inertial Profiler (IP), capable of exporting raw profile data in an unfiltered ERD file format or an approved ADF file format. The IP shall also produce a profilogram (profile trace of the surface tested). The IP shall conform to the Class I requirements of the most recent revision of ASTM E950.

Profile analysis for determination of IRI and areas of localized roughness will be conducted using ProVAL version 3.6 or the most recent version of ProVAL Software. IRI values shall be reported in inches/mile (in/mi).

The Contractor shall furnish an operator, trained in the operation of the particular IP.

(d) Pavement Surface Testing. In the presence of the Engineer, the Contractor shall setup a test section to calibrate the distance sensor and check the profile system calibration using the manufacturer’s calibration procedures before each day’s testing. Unless otherwise authorized by the Engineer, all smoothness testing shall be performed in the presence of the Engineer or his/her designated representative. For the duration of the work, every reasonable effort shall be made to test smoothness within 5 working days after each day’s paving operation. Scheduling and testing shall be coordinated with the Engineer. The Engineer and the Contractor shall mutually agree upon scheduling of smoothness testing.

The Contractor shall remove all objects and foreign material on the pavement surface prior to surface evaluation. The Contractor will be responsible for all traffic control associated with testing and any corrective work (when applicable) that is required of the final pavement surface.

The IP shall be run in the final design direction of traffic. Profiles shall be measured in the left and right wheel paths of each lane. Each lane’s wheel path shall be tested and evaluated separately. The Engineer shall determine the length in miles for each main lane of traffic. The IP shall be operated at the optimum speed as defined by the manufacturer.

The Contractor shall profile the final surface of the entire job length to determine if the pavement meets the smoothness values specified below and to determine total incentive/disincentive. Intermediate lifts will not be eligible for incentive, but may be profiled to isolate rough areas requiring proactive grinding. The Engineer will verify the profiles by testing approximately 10% of the pavement. This testing will be performed by the Engineer, using either the IP furnished by the Contractor or one provided by the Department, at the option of the Engineer. If the IP is furnished by the Contractor, the Contractor may elect to allow their employee to drive the IP but the sensors and data collection systems will be operated by the Engineer’s representative during each of the verification runs.
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The averaged IRI values for all segments will be used to determine payment incentive. The right and left wheel path readings will be averaged for every point read during the 528’ lane segment. Areas less than 0.1 mile (200 m) shall be combined with a full 0.1-mile segment before profiling. The left and right averaged wheel path points will be averaged to obtain an IRI value for the lane segment.

Any longitudinal joints within the limits of a travel lane shall be uniform to a degree that no depressions or high spots greater than 1/8” (3 mm) in 10’ (3 m) are present when tested with a straightedge placed perpendicular to the centerline of the lane.

Smoothness profiles of the first day’s run will be analyzed before the second day’s run commences. Should the first day’s run exceed an IRI of 60 inch/mile the paving operations shall be discontinued until better methods and equipment are obtained or until the present equipment is properly adjusted. If adjustments are necessary from the first day’s run, the second day’s run will be profiled to determine the ability of the equipment to finish the pavement within the specified tolerance. If the second day’s operation fails to produce a finished surface IRI of 60 inch/mile or less, the Contractor shall produce new methods and/or equipment that will obtain the specified results. The new methods and/or equipment will be given trial runs as indicated above for the original equipment. The finished pavement surface will be measured for roughness by the Contractor. Roughness will be measured using an IP. The profiler manufacturer’s data collection setting specifications shall be furnished and approved by the Engineer. The IRI shall not exceed 70 inches per mile per 0.1-mile section. Bridges will not be included in the calculation of the IRI.

Areas of localized roughness will be identified using the ProVAL "Smoothness Assurance" analysis, calculating IRI with a short continuous segment length of 25 ft. (7.62 m), the 250 mm filter applied, and a threshold of 150 in/mi, for design speeds above 45 mph. For design speeds of 45 mph or below, a threshold of 170 in/mi shall be used. Design speeds are listed in Design Traffic Data on the title sheet of the plans. If areas of localized roughness are identified, corrective action shall be performed as specified below. The finished surface of 25’ (7.5 m) sections adjacent to an existing structure or the end of pavement shall not show surface deviations in excess of 1/8” (3 mm) in 10’ (3 m) with the approved inertial profiler.

For the duration of the work every reasonable effort shall be made to test smoothness within 5 working days after each day’s run. All data obtained from the profiling operations will be furnished to the Engineer at the end of each day’s profiling operations. Scheduling and testing shall be coordinated with the Engineer. The Contractor shall be responsible for traffic control associated with their own testing and the Department’s verification testing.

Areas not meeting the above surface test requirements for the final surface course shall be corrected in such a manner as to maintain a quality pavement having the same uniform texture and appearance as the adjoining surface. Skin patching the final surface course will not be permitted.
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When the corrective action involves removing and replacing a section of the final surface, the minimum area to be removed shall be 50 linear feet (15 m) of length for the full width of the course placed. Replacement of the final surface shall be accomplished using a paver.

Grinding will be allowed, if necessary, to reduce the IRI as determined by the profiling equipment, as appropriate, in any 0.1 mile (200 m) section on all profiles, including the trial run. The grinding equipment shall be power driven and specifically designed to smooth and uniformly texture the pavement by means of diamond blades.

After the areas of localized roughness have been identified and grinding has taken place, the smoothness of the pavement shall be measured again to determine if the pavement has met the smoothness requirements for 100% pay. If grinding of localized roughness is required as described previously, positive price adjustments will not be allowed on that section, but the Contractor can receive a maximum of 100% pay. Continual production of a final surface not qualifying for 100% payment will not be allowed.

The averaged IRI values will be used to determine price adjustments. The right and left wheel path readings will be averaged for every point read during the 528' lane segment. Areas less than 0.1 mile (200 m) shall be combined with a full 0.1-mile segment before profiling. Then the left and right averaged wheel path points will be averaged to obtain an IRI value for the lane segment.

All corrective work and material necessary to correct surface tolerance deficiencies for surface courses shall be at no cost to the Department.

Areas showing low spots of more than 1/4" (6 mm) in 10' (3 m) in the longitudinal direction shall be corrected by grinding or shall be removed and replaced to an elevation that will not show surface deviations in excess of 1/8" (3 mm) in 10' (3 m).

Furnishing the IP, taking all required profiles, and performing all necessary computations will not be measured and paid for separately, but will be considered as part of quality control and acceptance sampling and testing included in the bid items for the ACHM items.

(e) Submittals. The Contractor shall submit the printed profile trace (graphical trace) signed by the operator, indicating each segment’s averaged IRI value, at the end of each day’s profiling operations.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

The Contractor shall also submit electronic files, with the printed profile trace, in ERD and ADF format that represent the raw data from each pass. The electronic file names shall follow the standardized format shown in the following:

YYMMDD-J-T-N-D-L-W-S

Where:

YY=Two-digit year
MM=Month (including leading zeros)
DD=Day of Month (including leading zeros)
J=the Department Job Number
T=Route Type (I, AR, US, etc.)
N=Route Number (no leading zeros) and auxiliary ID (if applicable, i.e. E, W)
D=Primary route direction (I or D, indicating Increasing or Decreasing; Increasing = North or East, Decreasing = South or West)
L=Lane number (1 for driving lane, increasing by one for each lane to the left)
W=Wheel path (L (left), R (right), or B (both))
S=Beginning Station

Pavement smoothness within each wheel path will be measured in terms of IRI (in/mi) according to the Pavement Surface Testing section above. Price adjustments apply to the total area for the lane width represented by the profile index for a continuous main lane section at least 0.1 mile (200 m) long. Price adjustments for incentives are only based on the initial measured profile index of continuous sections of at least 0.1 mile (200 m) in length, excluding approach slabs and bridges, and before any corrective work; however, grinding will be allowed to achieve 100% full payment in lieu of accepting a disincentive for that section. Ramps, acceleration/deceleration lanes, shoulders, islands, tapers, or other incidentals shall not be considered for price adjustments. If grinding is required due to failure to meet the required profile index, the pavement will be ground to a level which qualifies for 100% payment. The IRI will be used to determine acceptance for Pavement Smoothness and Price Adjustments for each 0.1-mile segment.

Subsection 410.09(d) is hereby deleted and the following added therefor:

(d) Price Adjustments for Ride Smoothness. (1) Ride Smoothness Lot: Upon completion of the final surface of the main lanes of a project, the Contractor shall provide documentation of eligibility for price adjustments as defined in this subsection. The Department reserves the right to verify information provided by the Contractor. In the case of dispute regarding price adjustments, the Department decision shall govern.

Price adjustments on lots accepted based on Percent Within Limits (PWL) will be calculated as part of the Total Pay Factor (PFT).
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

The Project shall be divided into Ride Smoothness Lots consisting of 0.1 mile (200 meter) sections of each travel lane starting at the beginning of the ACHM noted on the plans or as constructed. Partial Ride Smoothness lots will not be considered for ride smoothness price adjustments. Travel lanes shall consist of traffic lanes, turning lanes, or painted paved medians. Ramps, acceleration/deceleration lanes, crossovers, turnouts, shoulders, driveways, islands, patching, tapers, or other incidentals shall not be considered as part of a Ride Smoothness lot for price adjustments. Exceptions, including bridges and approach slabs, shall not be considered a part of a Ride Smoothness Lot.

(2) Price Adjustments. The Contractor shall determine the smoothness of the finished surface for each Ride Smoothness Lot utilizing an IP conforming to the Class I requirements of the most recent revision of ASTM E950.

No incentive payment for smoothness will be considered for a Ride Smoothness Lot if any portion of that Ride Smoothness Lot contains patched areas less than 200’ (60 m) in length or has been ground to obtain the required smoothness. If grinding of localized roughness is required as described previously, positive price adjustments will not be allowed on that section, but the Contractor can receive a maximum of 100% pay. If grinding is required due to failure to meet the required IRI, the pavement will be ground to a level which qualifies for 100% payment.

Price adjustments shall be made as follows:

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<tr>
<th>INTERNATIONAL ROUGHNESS INDEX In/Mi./0.1 Mi. section</th>
<th>INTERNATIONAL ROUGHNESS INDEX m per km/1.0 km section</th>
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<tr>
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<td>Over 0.79 to 0.87</td>
<td>+1.0%</td>
</tr>
<tr>
<td>Over 55 to 60</td>
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</tr>
<tr>
<td>Over 60 to 65</td>
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<td>-2.0%</td>
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<tr>
<td>Over 65 to 70</td>
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<tr>
<td>Over 70</td>
<td>Over 1.10</td>
<td>CORRECTIVE WORK REQUIRED</td>
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</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

Price adjustments for each ride smoothness lot will be calculated as follows:

\[
\text{Price Adjustment} = \left(\% \, \text{Price Adjustment}\right) \times \left(\text{Composite Unit Price of ACHM Surface Course Per Ton [Metric Ton]}\right) \times \left(\text{Tons [Metric Tons] of ACHM in Ride Smoothness Lot}\right)
\]

Where:

\[
\text{Tons of ACHM in Ride Smoothness Lot} = \frac{(\text{Lane Width}) \times (\text{528'} \, \text{Length}') \times (440 \, \text{lbs/SY}*)}{9 \, \text{SF/SY} \times 2000 \, \text{lbs/Ton}}
\]

\[
\text{Metric Tons of ACHM in Ride Smoothness Lot} = \frac{(\text{Lane Width}) \times (\text{200 m Length}) \times (240 \, \text{kg/sq m}*)}{1000 \, \text{kg/metric ton}}
\]

*Note: This is a constant rate for calculating positive and negative price adjustments for all projects.
Table 410-2
Percent Within Limits

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### Table 410-2
#### Percent Within Limits

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## PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

### Table 410-2

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## ARKANSAS DEPARTMENT OF TRANSPORTATION

### SPECIAL PROVISION

**JOB NO. CA0604**

### PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

#### Table 410-2

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### PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)

**Table 410-2**

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Section 409.03(h) of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following bullet is added under detailed requirements:

- Broadband Internet Service shall be provided.

The Broadband Internet Service shall be provided with an Internet Protocol (IP) address which is reachable on the global Internet (public) and which is permanently assigned (static). The Contractor is not required to provide this service if an IP address which is both static and public is not available.

If this service is not available at the beginning of a project but becomes available during the life of the project, the Contractor shall provide the service immediately from the date of availability.

The data transfer rate shall be 3 megabits per second (Mbps) download and 500 kilobits per second (kbps) upload, or higher, with latency not to exceed 150 milliseconds. If the Broadband Internet Service meets all of the requirements of this specification except for the data transfer rate and/or latency, then the best performing available connection shall be provided.

Prior to the selection of the Broadband Internet Service provider, the Contractor shall submit to the Resident Engineer, in writing, the proposed method for providing Broadband Internet Service. The Resident Engineer shall review this submittal and respond in writing regarding the acceptability of the proposed method.

The Broadband Internet Service shall be provided with equipment providing one Ethernet port.
DESCRIPTION: The Department will allow the use of Warm Mix Asphalt (WMA). All provisions for the production and placement of conventional HMA mixtures as stipulated in Section 410 Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses of the Standard Specifications for Highway Construction, Edition 2014, are applicable except as noted below.

Section 410 Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 410.03: Replace the third sentence with “WMA production temperatures at the plant shall be according to the Contractor’s approved mix design but may be adjusted based on recommendations of the WMA additive/process manufacturer.”

Add the following paragraph: “Implementation of best management practices in the control of aggregate moisture content prior to introduction to the drying or mixing drum is highly recommended in order to achieve the maximum benefit of WMA technology.”

Section 410.07: Replace the last sentence of the first paragraph with “Spreading and finishing temperatures shall be according to the Contractor’s approved mix design, but in no case shall the WMA be placed at a temperature less than 220° F.”
Section 412 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The second sentence of Subsection 412.01 is hereby deleted and the following is substituted therefor:

All material generated from this work on the project shall be transported and stockpiled at the location shown in the plans and shall become the property of the county in which the project is located or to an adjoining county as designated by the Engineer. The millings shall be stockpiled in a trapezoidal shape, or as directed by the Engineer, which can be easily measured.

The following is added as the second sentence of Subsection 412.05, Basis of Payment:

No direct payment will be made for loading, hauling, and stockpiling of the milled material. Full payment will be considered included in the unit price bid for Cold Milling Asphalt Pavement.
The following is added as the last paragraph of Subsections 501.04(a) and 802.06(a):

If the contractor elects to use Class C fly ash as a partial replacement for cement in Portland Cement Concrete Pavement or in Class S(AE) concrete and the plant producing the fly ash uses powdered activated carbon to meet EPA mercury emission requirements (as indicated in the Qualified Products List), an increased frequency for contractor quality control testing for air content will be required. As a minimum, an air content test must be taken at the beginning of placement and at intervals during placement not to exceed 20 cubic yards for Class S(AE) concrete and 100 cubic yards for Portland Cement Concrete Pavement. The Engineer may require more frequent testing if wide ranges occur in the air content test results. No additional payment will be made for additional air content testing, but full compensation will be considered included in the contract unit prices bid for Portland Cement Concrete Pavement or Class S(AE) Concrete.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

REACTIVE AGGREGATE TESTING

Division 500 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 501.02(a) is hereby deleted and the following substituted therefor:

(a) Cement. Unless otherwise specified, Portland cement conforming to the requirements of AASHTO M 85, Type I shall be furnished. One of the following blended cements may be used in lieu of Type I:

- Portland-Pozzolan Cement, AASHTO M 240, Type IP (20% maximum)
- Slag-Modified Portland Cement, AASHTO M 240, Type IS (25% maximum)
- Portland - Limestone Cement, AASHTO M240, Type 1L. Type 1L shall have a limestone constituent greater than 5% and less than or equal to 15% by mass of blended cement.

Fly ash or slag cement shall not be substituted for blended cements. Cement, blended cement, fly ash, and slag cement shall be from sources that are listed on the Department’s Qualified Products List and that have executed a certification agreement with the Department.

The total alkalis in the Portland cement (Na₂O + 0.658 K₂O) shall not exceed 0.60%. The total alkali content in the cementitious material (Portland cement, Portland – Limestone cement, fly ash or slag cement) shall not exceed 4 lb/cu yd (2.4 kg/cu m).

Fine and coarse aggregates to be used in the PCC on this project shall be tested and evaluated by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and ASTM C1567. Tests must be representative of aggregate sources which will be providing material for production. ASTM C1260 and ASTM C1567 tests may be run concurrently. A minimum of 10 business days prior to the start of PCC pavement construction, the contractor shall submit certified test reports to the Engineer for approval. The certified test reports shall be from an independent testing laboratory and must have been completed within 6 months of the date of the concrete mix design submittal.

Coarse aggregates and fine aggregates shall be tested separately in accordance with ASTM C1260, however the length of the test shall be extended to 28 days (30 days from casting). The 28-day expansion of the individual aggregates shall each be ≤ 0.10%.

If the 28-day expansion is greater than 0.10% for any of the component aggregates, the Contractor shall find a new material source which meets the above requirement or, alternately, may test the combined coarse and fine aggregate in accordance with ASTM C1567, modified for
combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

Cement shall be furnished in bulk. The mixing or alternate use of cement from different manufacturing plants will not be permitted. The source of cement shall not be changed without the written approval of the Engineer. The use of cement salvaged from spillage will not be allowed. Cement placed in storage shall be suitably protected. Loss in quality occurring during the storage period will be cause for rejection. If the cement furnished produces erratic results under the field conditions incident to the placing of the concrete, or in regard to the strength of the finished product, or in the time of the initial or final set, the contractor shall, without notice from the Engineer, cease the use of the source of cement.
This Special Provision supersedes Subsection 501.05(m) and 501.12 of the Standard Specifications.

**Description.** It is the intent of this specification to produce a pavement that is durable and consistently exceeds the minimum test values in these specifications. The pavement surface smoothness and associated payment adjustments will be determined by the use of the Inertial Profiler (IP) and the International Roughness Index (IRI). Pavement smoothness will be determined for each lane by obtaining the IRI for the left and right wheel paths in an individual lane. The averaged IRI values will be used to determine areas requiring correction and/or applicable payment price adjustments.

**Equipment and Operator.** The Contractor shall furnish a properly calibrated and documented Inertial Profiler (IP) capable of exporting raw profile data in an unfiltered ERD file format or an approved ADF file format. The IP shall also produce a profiogram (profile trace of the surface tested). The IP shall conform to the Class I requirements of the most recent revision of ASTM E950.

Profile analysis for determination of IRI and areas of localized roughness will be conducted using ProVAL version 3.6 or the most recent version of ProVAL Software. IRI values shall be reported in inches/mile (in/mi).

The Contractor shall furnish an operator, trained in the operation of the particular IP.

**Pavement Surface Testing.** In the presence of the Engineer, the Contractor shall setup a test section to calibrate the distance sensor and check the profile system calibration before each day's testing. Unless otherwise authorized by the Engineer, all smoothness testing shall be performed in the presence of the Engineer or his/her designated representative using the manufacturer’s calibration procedures.

The Contractor shall remove all objects and foreign material on the pavement surface prior to surface evaluation. The Contractor will be responsible for all traffic control associated with testing and any corrective work (when applicable) that is required of the final pavement surface.

The IP shall be run in the final design direction of traffic. Profiles shall be measured in the left and right wheel paths of each lane. Each lane's wheel path shall be tested and evaluated separately. The Engineer shall determine the length in miles for each main lane of traffic. The IP shall be operated at the optimum speed as defined by the manufacturer.

The Engineer will verify the profiles by testing approximately 10% of the pavement. This testing will be performed by the Engineer, using either the IP furnished by the Contractor or one provided by the Department, at the option of the Engineer.

If the IP is furnished by the Contractor, the Contractor may elect to allow their employee to drive the IP, but the sensors and data collection systems will be operated by the Engineer's representative during each of the verification runs.

For the first day's run, profiles will be taken utilizing the IP as soon as the hardness of the concrete is sufficient for proper testing. Smoothness profiles of the first day's run will be analyzed before the second day's run commences. Should the day's run exceed an IRI of 75 inch/mile the paving operations shall be discontinued until better methods and equipment are obtained or until the present equipment is properly adjusted. If adjustments are necessary from the first day's run, the second
day's run will be profiled to determine the ability of the equipment to finish the pavement within specified tolerance. If the second day's operation fails to produce a finished surface IRI of 75 inch/mile or less, the contractor shall produce new methods and/or equipment that will obtain the specified results. The new methods and/or equipment will be given trial runs as indicated previously for original equipment. The finished pavement surface will be measured for roughness by the Contractor. Roughness will be measured using an IP. The profiler manufacturer's data collection setting specifications shall be furnished and approved by the Engineer. The IRI shall not exceed 85 inches per mile per 0.1-mile section (1.60m per km per 0.8 km section). Bridges will not be included in the calculation of the IRI.

Areas of localized roughness will be identified using the ProVAL "Smoothness Assurance" analysis, calculating IRI with a short continuous segment length of 25 ft. (7.62 m), the 250 mm filter applied, and a short continuous threshold of 150 in/mi, and for design speeds above 45 mph, the 250 mm filter applied. For design speeds of 45 mph or below, a threshold of 170 in/mi shall be used. Design speeds are listed in Design Traffic Data on the title sheet of the plans. The longitudinal limits of corrective work shall be taken from the ProVAL "Grinding" section within the "Smoothness Assurance" analysis, using the "Default Grinding Strategy" option and corrective grinding shall be performed as specified below. The finished surface of 25' (7.5 m) sections adjacent to an existing structure or the end of pavement shall not show surface deviations in excess of 1/8" (3 mm) in 10' (3 m) with the approved inertial profiler.

For the duration of the work, every reasonable effort shall be made to test smoothness within 5 working days after each day's paving operation. Scheduling and testing shall be coordinated with the Engineer. The Engineer and the Contractor shall mutually agree upon scheduling of smoothness testing. All data obtained from the profiling operations will be furnished to the Engineer at the end of each day's profiling operations.

All corrective work and material necessary to correct surface tolerance deficiencies for surface courses shall be at no cost to the Department.

Furnishing the IP, taking all required profiles, and performing all necessary computations will not be measured and paid for separately but will be considered as part of quality control and acceptance sampling and testing included in the bid items for the PCCP items.

Areas showing low spots of more than 1/4" (6 mm) in 10' (3 m) in the longitudinal direction shall be corrected by grinding or shall be removed and replaced according to Section 507 to an elevation that will not show surface deviations in excess of 1/8" (3 mm) in 10' (3 m).

The cross slope of the pavement shall vary no more than 1/8" (3mm) in 10' (3 m) when tested with a straight edge.

Any longitudinal joints within the limits of a travel lane shall be uniform to a degree that no depressions or high spots greater than 1/4" (6 mm) in 10' (3 m) are present when tested with a straightedge placed perpendicular to the centerline of the lane.

Grinding shall be performed, if necessary, to reduce the IRI as determined by the Smoothness Assurance analysis in ProVAL. The grinding equipment shall be power driven and specifically designed to smooth and texture PCC by means of diamond blades. Areas that have been ground
shall be re-grooved by grooving according to Subsection 510.04, to provide a uniform texture equal
in roughness to the surrounding unground pavement. The grinding process shall produce pavement
surface that is true to grade and uniform in appearance with a longitudinal line type texture. The line
type texture shall contain parallel longitudinal corrugations that present a narrow ridge corduroy type
of appearance. The peaks of the rides shall be approximately 1/32” (0.8mm) higher than the bottoms
of the grooves with approximately 53 to 57 evenly spaced grooves per foot (170 to 190 evenly spaced
grooves per meter).

However, if the ground area is less than 50’ (15 m) in length and full width of pavement lane, re-grooving will not be required.

After the areas of localized roughness have been identified and grinding has taken place, the
smoothness of the pavement shall be measured again to determine if the pavement has met the
smoothness requirements for 100% pay. If grinding of localized roughness is required as described
previously, incentives will not be allowed on that section, but the Contractor can receive a maximum
of 100% pay. Continual production of a final surface not qualifying for 100% payment will not be
allowed.

The averaged IRI values will be used to determine payment adjustments. The right and left wheel
path readings will be averaged for every point read during the 528’ lane segment. Areas less than
0.1 mile (200 m) shall be combined with a full 0.1-mile segment before profiling. Then the left and
right averaged wheel path points will be averaged to obtain an IRI value for the lane segment.

For isolated areas that are not connected to adjacent paved areas, a 10’ rolling straightedge will be
used to determine areas of localized roughness, following the method specified in Subsection
straightedge will also be used to determine areas of localized roughness on transverse joints,
construction joints, bridge ends, and any other area designated by the Engineer.

Submittals. The Contractor shall submit the printed profile trace (graphical trace) signed by the
operator, indicating each segment's averaged IRI value at the end of each day’s profiling operations.

The Contractor shall also submit electronic files, with the printed profile trace, in ERD and ADF format
that represent the raw data from each pass. The electronic file names shall follow the standardized
format shown in the following.

YYMMDD-J-T-N-D-L-W-S
Where:
YY=Two-digit year
MM=Month (including leading zeros)
DD=Day of Month (including leading zeros)
J=the Department Job Number
T=Route Type (I, AR, US, etc.)
N=Route Number (no leading zeros) and auxiliary ID (if applicable, i.e. E, W)
D=Primary route direction (I or D, indicating Increasing or Decreasing; Increasing =
North or East, Decreasing = South or West)
L=Lane number (1 for driving lane, increasing by one for each lane to the left)
W=Wheel path (L (left), R (right), or B (both))
S=Beginning Station
Pavement smoothness within each wheel path will be measured in terms of IRI (in/mi) according to the Pavement Surface Testing section above. Price adjustments apply to the total area for the lane width represented by the profile index for a continuous main lane section at least 0.1 mile (200 m) long. Price adjustments for incentives are only based on the initial measured profile index of continuous sections of at least 0.1 mile (200 m) in length, excluding bridges, and before any corrective work; however, grinding will be allowed to achieve 100% full payment in lieu of accepting a disincentive for that section. Ramps, acceleration/deceleration lanes, shoulders, islands, tapers, or other incidentals shall not be considered for price adjustments. If grinding is required due to failure to meet the required profile index, the pavement will be ground to a level which qualifies for 100% payment. The IRI will be used to determine acceptance for Pavement smoothness and price adjustments for each 0.1 mile segment.

**Price Adjustments for Pavement Smoothness.** Incentive payments will be shown on the final estimate as a separate item. Price adjustments apply to the total area of final surface for the standard lane width represented by the IRI for a continuous main lane section at least 0.1 mile (200 m) in length. Areas less than 0.1 mile (200 m) shall be combined with a full 0.1 mile segment. Any area less than 0.1 mile (200 m) shall be authorized by the Engineer prior to the profiling activities. Incentives will be calculated based on the following guidelines.

No incentive payment for smoothness will be considered for a Ride Smoothness Lot if any portion of that Ride smoothness Lot has been ground to obtain the required smoothness. If grading of localized roughness is required as described previously, incentives will not be allowed on that section, but the Contractor can receive a maximum of 100% pay. If grinding is required due to failure to meet the required IRI, the pavement will be ground to a level which qualifies for 100% payment.

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CorRECTIVE WORK REQUIRED
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

BROADBAND INTERNET SERVICE FOR FIELD OFFICE

Section 602 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added after the first paragraph of Subsection 602.02(b):

Broadband Internet Service shall be provided to the field office where available.

The Broadband Internet Service shall be provided with an Internet Protocol (IP) address which is reachable on the global Internet (public) and which is permanently assigned (static). The Contractor is not required to provide this service if an IP address which is both static and public is not available.

If this service is not available at the beginning of a project but becomes available during the life of the project, the Contractor shall provide the service immediately from the date of availability.

The data transfer rate shall be 3 megabits per second (Mbps) download and 500 kilobits per second (kbps) upload, or higher, with latency not to exceed 150 milliseconds. If the broadband Internet service meets all of the requirements of this specification except for the data transfer rate and/or latency, then the best performing available connection shall be provided.

Prior to the selection of the broadband Internet service provider, the Contractor shall submit to the Resident Engineer, in writing, the proposed method for providing broadband Internet service. The Resident Engineer shall review this submittal and respond in writing regarding the acceptability of the proposed method.

The Broadband Internet Service shall be provided with equipment providing one Ethernet port.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

MAINTENANCE OF TRAFFIC

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

The Contractor shall provide additional traffic control through the project as defined below, in order to provide a safe and convenient traffic flow at all times throughout the limits of each work zone and the approaches thereto.

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

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

Except where shown on the plans, there shall be no two-way traffic operations permitted on the main lanes. Interchange ramps shall be kept operational at all times. Except where shown on the plans, work on the main lanes and ramps shall be accomplished in partial widths in order to maintain traffic.

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

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

The Contractor shall not close any portion of a lane unless active work will begin immediately. In addition, when gainful work is not being accomplished in an area where a lane has been previously closed, steps shall be taken to return traffic to normal conditions - that is, all lanes open to traffic in each direction within 72 hours after construction operations have ceased. All additional labor, materials, and incidentals needed to return the traffic to normal conditions shall be provided, maintained, removed, and replaced, if necessary, at no cost to the Department. Traffic shall not be permitted on any milled surface.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

MAINTENANCE OF TRAFFIC

Failure to comply with this requirement will result in a lane use charge of $21,000 per hour until work begins in the closed lane or the lane closure is removed. A lane closure will not be considered to be removed until all advance warning devices specific to the lane closure have been removed or revised. In assessing this lane use charge any portion of an hour will be counted as a full hour.

The Contractor shall schedule his work so that no main lane closures exist and no work requiring main lane closures will be performed for the time period of the day before the Holiday through the day after the Holiday for the following Legal Holidays:

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

If the Legal Holiday is immediately prior to a weekend or immediately following a weekend, the weekend will be considered a part of the Holiday.

In addition, single lane closures of the Hwy. 67 main lanes will not be permitted during the following time periods:

- Daily from 5:00 a.m. to 8:00 p.m.

Failure to comply with this requirement will result in a lane use charge of $21,000 per hour until the lane closure is removed. A lane closure will not be considered to be removed until all advance warning devices specific to the lane closure have been removed or revised. In assessing this lane use charge any portion of an hour will be counted as a full hour.

The Contractor shall schedule and perform the work, including the placement and removal of traffic control devices, to insure that all Hwy. 67 traffic lanes are open at all times, with the aforementioned exceptions.

Special events or occurrences could cause traffic to become congested. When this occurs, the Contractor shall immediately modify the work schedule, working methods, or procedures to lessen the impact of the work on traffic or as directed by the Engineer.

The Contractor will regulate the access of work vehicles and equipment to the work area while insuring safety to the traveling public and minimum damage to highway facilities. Any damage to the highway facility or vegetation caused by the Contractor shall be repaired at no cost to the
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

MAINTENANCE OF TRAFFIC

Department. Unless operating within the area closed to traffic, the Contractor’s work vehicles shall travel in the direction of the normal traffic flow. Only those vehicles necessary for the work shall be allowed in the work zone. All other vehicles shall be parked at a safe location outside the work zone, as approved by the Engineer.

General equipment storage areas or operations centers will be allowed within the limits of the right of way only where permitted by the Engineer. At the end of the work day, equipment shall be either shielded from traffic by an approved positive barrier or placed so it is not within 30 feet of any lane carrying traffic.

The Contractor shall restrict the crossing of the median to existing interchanges and overpasses. Access to the project shall be limited to existing interchanges.

The Contractor shall conduct his operations so that no equipment or personnel shall occupy any portion of the roadway that remains designated for the passage of traffic.

**BASIS OF PAYMENT:** There shall be no direct payment for fulfilling the requirements of the Special Provision, but compensation shall be considered included in the price bid for Maintenance of Traffic.

Traffic control devices, where shown on the plans for payment, will be paid for at the contract unit price for each item involved. All additional traffic control devices beyond the contract amount shall be provided, maintained, and replaced, if necessary, at no cost to the Department.
DESCRIPTION: This specification covers special safety requirements during the installation of overhead signs and/or structures. These requirements are intended for the safety of both the traveling public and the workers. Any modifications must meet the approval of the Engineer.

GENERAL: Any falsework or construction equipment located on the shoulder and required for erection of the structural steel, or for other activities, shall be protected by the precast barrier shown on Drawing No. TC-4 or by barricades that meet the safety requirements of the Engineer. No equipment or materials will be permitted to be hoisted over traffic. Erection of sign supports and other activities over the lanes of Highway 67, Highway 5 and Highway 89 and as specified by the Engineer shall be limited to the hours between 9:00 p.m. and 5:00 a.m. on Sunday through Saturday, but will not be permitted during legal holidays or weekends adjacent to these holidays. The allowable work period may be increased or decreased by the Engineer based upon impact to traffic. During the specified work period traffic may be stopped for short intervals of time, not to exceed 15 minutes, or one lane in each direction may be closed, as approved by the Engineer, in order that the above activities can progress without endangering the traveling public. Between closure periods the roadway must be opened for a sufficient length of time to allow re-establishment of the normal flow of traffic. Time windows are subject to adjustment by the Engineer when necessary to accommodate special events or situations.

The Contractor shall notify the Resident Engineer no less than five (5) business days before any activities that will temporarily or permanently reduce the vertical clearance over the above listed roadway(s). Notification is required for each activity that will reduce the previous existing clearance. A minimum vertical clearance of 14'-0" must be maintained during all activities.

The Contractor shall schedule his work so that no main lane closures exist and no work requiring main lane closures will be performed for the time period of the day before the Holiday through the day after the Holiday for the following Legal Holidays:

- New Year’s Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day & the Following Day
- Christmas Eve & Christmas Day
SPECIAL SAFETY REQUIREMENTS FOR OVERHEAD SIGNS

If the Legal Holiday is immediately prior to a weekend or immediately following a weekend, the weekend will be considered a part of the Holiday.

The Engineer may limit or not approve closures due to special events or incidents that could cause traffic to become congested. The Contractor shall immediately modify his schedule, working methods or procedures as directed by the Engineer.

No direct payment will be made for this work. It shall be considered subsidiary to the other items in the contract.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604

FURNISH AND OPERATION OF MOBILE SPEED NOTIFICATION SYSTEM

GENERAL.
This item consists of furnishing a fully operational Mobile Speed Notification System in accordance with these specifications. This system will consist of all hardware, software, and other equipment necessary to collect and process speed data of moving vehicles (trucks and passenger vehicles) at speeds ranging from 10 to 99 miles per hour (mph). The System shall utilize a trailer for storing all equipment and deploying at the site. The speed information shall be shown on an LED display as an alert to motorists entering the work zone.

OPERATION.
The Contractor shall furnish, operate on a daily basis, and maintain this system as directed by the Engineer until the completion of the project. At the completion of the project the system will become the property of the contractor.

Lane closures will not be allowed without the fully operational Mobile Speed Notification System in place. When not in use, the Mobile Speed Notification System shall be removed from the roadway by the Contractor and stored in an approved location.

CONFIGURATION.
The Mobile Speed Notification System will be furnished in a trailer that houses all the equipment necessary for this system. The system shall be a commercially available production model with less than 2 hours of operation time. No prototype system will be allowed. The Mobile Speed Notification System should be designed for a set-up time or take-down time of under 5 minutes. The System shall be capable of fully operating on battery power alone for a minimum of 120 hours (five days). A fully deployed system will show the following information:

* SPEED LIMIT XX
* Variable LED Display
* YOUR SPEED

Where XX is the posted speed limit and the LED display shows the speed of the motorist’s vehicle and YOUR SPEED is a sign included on the trailer.

The system shall utilize a violation alert threshold that causes the system to flash the LED digits on the display or flash the display background when violated by a motorist. A secondary violation alert threshold shall also be included in the system that allows the operator to input an excessive speed value that triggers a strobe or flashing lights to alert the motorists. The Mobile Speed Notification System shall also include a maximum speed cut-off that limits the speed displayed.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

FURNISH AND OPERATION OF MOBILE SPEED NOTIFICATION SYSTEM

The system shall measure speed via K-band radar capable of detecting speeds with an accuracy of ± 4 miles per hour at highway speeds. The radar unit shall conform to the National Highway Traffic Safety Administration (NHTSA) “Model Minimum Performance Specification for Police Traffic Radar Devices”.

TRAILER.

A single axle type trailer with a weather resistant enclosure for all electronic equipment will be provided. The trailer should be capable of transporting all the equipment necessary to deploy at a site. Stabilizing jacks mounted to the trailer frame shall be included. The trailer shall have a standard ball type hitch. A full size tire and wheel shall be supplied with the trailer. Wiring and lights meeting federal and state requirements for trailers shall be installed. The trailer shall be designed to act as a frame for the regulatory speed sign and the LED display. This LED display should be permanently installed in or on the trailer.

A mounting system shall be included in the trailer that will position a 24 inch by 30 inch (or larger) regulatory speed sign above the trailer or LED panel. The LED panel shall display speeds using two digit numbers that are a minimum of 18 inches tall. Speeds shall be displayed in miles per hour (mph) at a range from 10 to 85 mph.

POWER SUPPLY.

A 12 volt system will be used to power the system. A minimum of one deep cell marine battery shall be supplied. An AC charging system along with a solar power charging system shall be included. A solar panel shall also be included that provides continuous charging of the batteries during optimum conditions. The solar panel shall be attachable to the trailer and include all components necessary for operation.

ELECTRONICS.

The electronic control panel shall be weather resistant. All controls, including alert signals, maximum speed cut-off, voltage readings, and radar sensitivity shall be easily accessible in the control panel. The LED Display shall provide high intensity number lighting for daytime operation and variable intensity for nighttime use.

METHOD OF MEASUREMENT.

Mobile Speed Notification System will be measured for payment by the each.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

FURNISH AND OPERATION OF MOBILE SPEED NOTIFICATION SYSTEM

BASIS OF PAYMENT.

Work completed and accepted under the item of Mobile Speed Notification System and measured as provided above will be paid for at the contract unit price bid for Mobile Speed Notification System, which price shall be full compensation for furnishing, operating, moving, and maintaining this system; for materials, labor, tools, equipment and incidentals necessary for maintenance, repair and/or replacing all system components as necessary; until the completion of the project. No payment will be made for repair or replacement of Mobile Speed Notification System damaged by traffic or vandalism.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Speed Notification System</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES

Section 604 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added as the second paragraph of subsection 604.03(j):

When the condition requiring the sign’s message mode ceases to exist, but the need for the sign is anticipated to recur within 72 hours, the sign may be left in place and operated in the caution mode with one of the following series of messages displayed for this interim:

- “Drive Safely” followed by “Buckle Up”
- “Don’t Drink and Drive” followed by “Buckle Up”

The Engineer will determine which of the above series of messages will be displayed.

If it is anticipated that the sign will not be required and authorized for use in a message mode within a 72-hour period, it shall be removed to an approved location.

The first paragraph of subsection 604.04 is deleted and the following substituted therefore:

Traffic control devices designated on the plans or authorized by the Engineer will be measured by the square meter (square foot), meter (linear foot), each, day, or week. The maximum quantities of traffic control devices, other than pavement markings, Advance Warning Arrow Panels and Portable Changeable Message Signs, authorized for payment will be the maximum amounts of each, shown on the plans or authorized by the Engineer, that may be required to be in place at any one time during the construction period.

Subsection 604.04(d) is deleted and the following substituted therefore:

(d) Advance Warning Arrow Panels. Advance Warning Arrow Panels furnished will be measured for payment by the number of days each panel is required and authorized by the Engineer. Payment for a full day will be made for any portion of a day that the panel is authorized and used, but the measurement shall not exceed one per panel in any calendar day. When Advance Arrow Warning Panels are required after the contract time has expired and liquidated damages are being assessed, the Contractor shall furnish such panels at no cost to the Department.

The following is added as subsection 604.04(e):

(e) Portable Changeable Message Signs. Portable Changeable Message Signs furnished will be measured for payment by the number of weeks each panel is required and authorized by the Engineer. A “week” is defined as a 7-calendar day period beginning at 12:01 a.m. Monday. Payment for a full week will be made for any portion of a week that the sign is authorized and used in a message mode but the measurement shall not exceed one per sign in any week. No measurement will be made for Portable
ARKANSAS DEPARTMENT OF TRANSPORTATION

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JOB NO. CA0604

TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES

Changeable Message Signs operated in the caution mode at the option of the Contractor as allowed herein. When Portable Changeable Message Signs are required after the contract time has expired and liquidated damages are being assessed, the Contractor shall furnish such signs at no cost to the Department.

The first paragraph of subsection 604.05 is deleted and the following substituted therefore:

Traffic control devices completed and accepted and measured as provided above will be paid for at the contract unit price bid per square meter (square foot), meter (linear foot), each, day, or week, as applicable for the particular item, according to the following:

The pay item Portable Changeable Message Sign is deleted and the following substituted therefore:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portable Changeable Message Sign</td>
<td>Week</td>
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</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

TRAFFIC CONTROL SUPERVISOR

Section 603 Maintenance of Traffic and Temporary Structures of the Standard Specifications for Highway Construction, 2014 Edition, is hereby expanded to include the following:

It is the intent of this Special Provision to require the contractor to provide a Traffic Control Supervisor in accordance with the Standard Specification for Highway Construction, 2014 Edition. In addition, the contractor shall provide a Traffic Control Supervisor continuously, on site, 24 hours per day, 7 days per week until traffic is returned to its normal condition – that is, all main lanes open to traffic in each direction and full ramp operations.

The Contractor’s Traffic Control Supervisors shall maintain the Portable Changeable Message Signs and provide credible and accurate information until traffic is returned to its normal condition - that is, all main lanes open to traffic in each direction and full ramp operations. All messages must have approval of the Engineer prior to use. The Engineer will have the authority to change messages as conditions dictate.

**BASIS OF PAYMENT:** Work completed, accepted, and measured as provided above will be paid for at the Lump Sum unit price bid for the contract item Traffic Control Supervisor, which price shall be full compensation for fulfilling the requirements of all of the services as described above.

<table>
<thead>
<tr>
<th>Pay Item</th>
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<tr>
<td>Traffic Control Supervisor</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CONSTRUCTION PROJECT INFORMATION SIGN

DESCRIPTION: This project includes Construction Project Information Signs to inform the public of pertinent job information. Included in this information is the job number, start date, and estimated completion date. Additional information to be included on this sign can be viewed on the special detail in the plans. Location and quantity of signs for this project is located in the Maintenance of Traffic Details.

MATERIALS: All materials incorporated into the project for this sign shall conform to the specifications pertaining to Signs in Section 604 in the Standard Specifications for Highway Construction and appropriate supplemental specifications. The numerals and letters for both date fields may be placed on separate sign blank material that can then be attached to the larger sign blank or be furnished as sections of reflective sheeting that can be used to overlay a revised date. The dimensions of the letters and numbers shall match the sizes shown in the project's special detail. The sign blank material and reflective sheeting used for the date fields shall be the same types used for the overall sign.

CONSTRUCTION REQUIREMENTS: The start date shown on the sign shall be either the date that work began on an active project or the month during which the Contractor plans to begin work on a new project. The initial estimated completion date to be placed on the sign will be either the completion date shown in the project's CPM schedule or a date based on information provided by the Contractor and agreed to by the Engineer. The Contractor will be required to update the sign’s estimated completion date information, Month and/or Year, if and where directed by the Engineer throughout the duration of the project.

The Construction Project Information Sign shall be installed at the same time when all other advanced warning signs are installed on the project. The Contractor will have five (5) business days from the time the Engineer informs the Contractor to update the Estimated Completion Date on the Construction Project Information Sign. Failure to change the date on the sign after five (5) days may lead to the holding of pay estimates until the dates are updated.

METHOD OF MEASUREMENT: Construction Project Information Sign will be measured by the square foot of sign area and will be paid under the contract item “Signs”. Construction Project Information Sign Update will be measured by the each, which shall consist of updating the Month and/or Year. Updates that require a change in both the month and year will not be treated separately and shall be paid as a quantity of one (1) each.

PAYMENT: Construction Project Information Sign. The contract unit price bid per square foot for Signs shall be full compensation for all materials, labor, equipment, tools, and incidentals necessary for installing, and for maintenance, repair, and removal of the Construction Project Information Signs.

CONSTRUCTION PROJECT INFORMATION SIGN UPDATE. The contract unit price bid for this item shall be full compensation for furnishing and installing the overlay or sign blank insert for updating the Estimated Completion Date, for all materials, labor, equipment, tools, and incidentals necessary for installing and maintaining the date field on the sign. This item will be
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CONSTRUCTION PROJECT INFORMATION SIGN

paid each time the Resident Engineer requests an updated date be installed on the Construction Project Information Sign.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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<tr>
<td>Construction Project Information Sign Update</td>
<td>Each</td>
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</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

AUTOMATED WORK ZONE INFORMATION SYSTEM

This item shall consist of furnishing, installing, operating, maintaining, and moving from one location to another an Automated Work Zone Information System (AWIS) in accordance with the plans and these specifications. The AWIS components will be located both in and near the limits of the project.

The system shall consist of all hardware, software, and other equipment necessary to collect, process, and display traffic condition data. The data will be used to provide motorists with up-to-the-minute real-time visual traffic information verification, operating speed, and advisory messages via www.idrivearkansas.com, closed circuit television (CCTV), e-mail. All of these items shall be considered part of the AWIS.

The Automated Work Zone Information System shall consist of variable message signs (VMS), vehicle detection sensors (VDS), closed circuit television cameras (CCTV), CCTV shall be available to monitor and verify traffic conditions at specified locations. The various messages and scenarios used by this system will be the responsibility of the Contractor and approved by the Engineer.

AWIS output shall push data to the Department’s idrivearkansas.com website for use by the public for the viewing of all information being relayed to motorists in the construction and affected areas as well as any speed or congestion information from individual traffic sensors. The Contractor shall coordinate with the Department’s Public Information Office and their duly appointed representative (i.e. website consultant) to integrate the data onto existing map(s) on the idrivearkansas.com website. The data shall be displayed as part of map layers with icons depicting all devices and at an accurate location based on the latitude and longitude of the device. When a device is relocated, the new position should be updated on the data output. Each icon, when activated, shall display the information supplied or displayed by that traffic control sensor/device. The information linked to or displayed with each icon shall be in real-time. This shall occur by the system polling each device a minimum of once every 60 seconds.

SYSTEM REQUIREMENTS.

AWIS: The Automated Work Zone Information System shall be fully operational, as defined in the Operational Test requirements of this special provision, before payment/s will be made for any of the AWIS components. Main lane closures will not be permitted until the AWIS is fully operational. After approval of the Operational Test report by the Engineer, the Contractor shall maintain the AWIS as fully operational for 24 hours a day, 7 days a week, 365 days per year until the project is substantially complete. The AWIS shall utilize sufficient equipment to collect, monitor, and disseminate accurate and timely information about traffic and travel conditions in and near the work zone. Additional equipment deemed necessary by the Engineer in order to accomplish this shall be measured and paid for under the applicable portions of this Special Provision. All equipment will be required to communicate with the central server and software. All equipment will be portable. The central server and software shall be maintained offsite in a secure environment.
(1) Layout. The Contractor shall submit a Final AWIS Layout Plan for approval that will include the location of VMS, VDS, and CCTV. The project plans shall be used as a guide in developing the Final AWIS Layout Plan. This plan will consider the placement of AWIS equipment and signs to avoid conflicts with construction or reducing the effectiveness of construction signing. The Engineer shall approve the Final AWIS Layout Plan before any AWIS equipment is deployed.

(2) Equipment. All equipment components of the AWIS, including VMS, VDS, and CCTV, shall be in good working order and meet the product standards of the vendor. All equipment should be trailer mounted and solar powered. No prototype equipment will be used unless approved by the Engineer.

Trailer mounted equipment shall be protected by traffic drums in accordance with guidance provided in the MUTCD and standard drawings. Traffic drums shall be maintained in accordance with Section 604 of the Standard Specifications. Any traffic drums which are damaged or in need of replacement as determined by the Engineer shall be replaced. Furnishing, maintaining and/or replacement of traffic drums will not be paid for separately but shall be considered as included in the unit cost for the equipment provided for in this specification.

a. Variable Message Sign. Each VMS shall be capable of being remotely controlled by both the control server and software and by the Traffic Control Supervisor in the event of a system malfunction. The VMS used shall be a current model from the manufacturer.

b. Vehicle Detection Sensors. Each vehicle detection sensor shall be capable of monitoring traffic speed with a detection range of up to 250 feet and the ability to detect up to 10 lanes of traffic in multiple directions.

c. Closed Circuit Television. The portable CCTV shall be mounted on trailers capable of supporting the camera at a height of 30 ft. The CCTV shall include a solar powered Ethernet connection, 35X optical zoom and 12X digital zoom, IP66 rating and be capable of H.264/Motion JPEG video compression. The CCTV will allow viewing at a minimum of 1 frame per second. The CCTV system shall contain a camera system that automatically changes from color mode to black and white mode under low light conditions in order to render a more detailed image.

The images shall be shown on any computer with a browser capable of viewing JPEG format images.

The vendor shall provide a CDN (Content Delivery Network) to aggregate the video data streams from any AWIS CCTV to a centralized location to reduce bandwidth consumption from each individual CCTV head to head end users and allow for separate controllable/configurable steams for the public and operators.
ARKANSAS DEPARTMENT OF TRANSPORTATION

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JOB NO. CA0604

AUTOMATED WORK ZONE INFORMATION SYSTEM

The CDN should be capable of allowing the Department to stop and start video feeds for public view while not interfering with the provided feeds for the Department’s use.

(3) Communications. The AWIS shall be installed to provide constant communication to and from VDSs, VMSs, and CCTVs to the central server and software. The AWIS shall have a complete cycle time of less than 120 seconds that includes delivery of e-mail information. If the system is not able to operate within the 120-second cycle time, the system shall be considered inoperative. All communication platforms between the AWIS server, VMS, VDS, and CCTV shall be accomplished by digital cellular modem, radio frequency (FCC or FHWA band), or other means subject to approval by the Engineer.

The Contractor shall secure any necessary FCC and/or FHWA licenses for the operation of the Work Zone Information System, including all necessary license renewals.

The system shall also be capable of e-mailing information to a minimum of 10 locations, such as police agencies and broadcast media. The e-mail information shall include the scenario in effect and the messages delivered to the public.

(4) Message Displays and Scenarios. The Contractor shall submit to the Engineer for approval a Traveler Notification Plan detailing the messages delivered along with the traffic scenarios used to activate the messages. The Contractor must have an approved plan to operate the AWIS. Modifications to this plan will be made and executed if the Engineer determines that any of the current messages or traffic scenarios in use is ineffective, that additional traffic scenarios and/or equipment are needed to adequately warn the public, or errors are found in the messages being given to the public. The term “Mile Marker” shall be displayed to the public in lieu of “Log Mile”.

E-mails and/or SMS text messages shall be sent to the Engineer as well as the Contractor whenever the system detects a failure of any of the components or if the main power supply to the AWIS system controller or monitoring system is interrupted. Notification shall be sent within 10 minutes of the system detecting a problem as indicated above. This will provide notice to the Contractor of needed repairs. Failures shall be defined as any system component not checking in with the system controller as scheduled.

E-mails and/or SMS text messages shall be sent to the Engineer whenever the system detects a failure of a VMS, VDS, or a CCTV unit, or if the main power supply to the system controller or monitoring system is interrupted. This will provide notice to the Engineer that the system may not be functioning as intended and improper messages may be delivered to the public.
If the current speed on an approaching roadway segment is at or above the speed limit, the upstream VMS will display either the following message or one approved by the Engineer:

WORK ZONE XX MILES AHEAD
DRIVE SAFELY

If the current speed drops to less than 45 MPH but greater or equal to 20 MPH, then either the following message or one approved by the Engineer will be displayed:

SLOWING TRAFFIC AHEAD
SPEEDS 20 – 45 MPH

If the current speed on the approaching roadway drops below 20 MPH then either the following message or one approved by the Engineer will be displayed:

STOPPING TRAFFIC AHEAD
SPEEDS UNDER 20 MPH

System Reports. The system shall be capable of automatically creating a log of component failures the system encounters. This log shall be submitted on a weekly basis to the Engineer. The log shall indicate the time the component failed and the time it returned to normal operation. A system activity log showing the system device displays along with the time of the display or measurement shall also be recorded and submitted to the Engineer on a bi-weekly basis coinciding with the Department’s bi-weekly estimate periods. Failure to submit the System Reports as specified can result in withholding of monthly operational line items for the weeks in question.

Operational Test. The AWIS shall be in fully operational during all phases of construction. Once installed, a five-day Operational Test shall be conducted before any time will be considered for payment. The Contractor shall provide for complete operations support from the vendor during the Operational Test. If any equipment malfunctions occur for a combined period of four hours or more during this Operational Test on any day, no credit will be given for that day for the Operational Test period. Applicable time charges (Working Days and/or Site Use Days) will be assessed during the AWIS Operational Test period. Standard Specification 108.07, Failure to Complete Work on Time, will not apply.

The Contractor shall maintain records of equipment stoppages and resumptions during the five-day Operational Test for submission to the Engineer for his approval. In the event that 10 percent or more of the time similar equipment malfunctions occur that affect the proper operation of the AWIS, the Engineer may declare a system component defective and require replacement of the equipment at no additional cost to the Department. When a system component defect is declared, the five-day Operational Test shall resume after all defective equipment is replaced and the system is fully operational.
The Contractor shall submit a report to the Engineer detailing the daily activity of the system during the Operational Test. The Contractor shall indicate in the report the date and time of any activity necessary to maintain operation of the AWIS during the Operational Test period. Each entry shall include the following information:

- Identity of equipment on which work was performed
- Cause of equipment malfunction (if known)
- A description of the type of work performed
- Time required to repair equipment malfunction

Once the Operational Test Report is received and approved by the Engineer, the AWIS will be considered fully operational and time charges for the AWIS may commence.

After the Operational Test, the term “fully operational” will be defined as all components of the system functioning as designed. If the system (which includes e-mails and data push to www.idrivearkansas.com) is discovered to be providing inaccurate information regarding traffic flow, it shall be shut down immediately upon discovery. If the system is corrected within 4 hours of its malfunction, the system will be classified as “fully operational”. If the system fails to provide accurate information regarding traffic backups and is not corrected within 4 hours, the system will be classified as “not fully operational”. If a component or components fail and causes a "lockup" of the system resulting in inaccurate information being given to the public via VMS components, the system shall be classified as “not fully operational” if the lockup is not resolved within 4 hours of the initial failure.

To ensure a prompt response to incidents involving the integrity of the Automated Work Zone Information System devices and VMSs, the Contractor shall be required to make all necessary corrections to the components of the system within 12 hours of notification by the Department. If all corrections are made within this 12-hour period and the system is brought back on-line, no pay reduction will occur. Components are the Variable Message Signs, Portable Closed Circuit Television Systems, speed and volume sensors, communications equipment, and all hardware and software required to operate the signs and the data connection to www.idrivearkansas.com. The video feeds to www.idrivearkansas.com are included in this component listing. If the 12-hour time frame expires and the components are not fully restored to proper working order, no payment will be made from the time of initial notification until the system is returned to being fully operational.

Failure to comply with these requirements after the 12 hours have expired will result in a charge calculated by dividing the Daily Road User Cost (shown in the “Site Use (A+C Method)” special provision) by 24 and rounded down to the nearest dollar. This charge will continue until all components of the AWIS are restored to a fully operational status. In assessing this charge, any portion of an hour will be counted as a full hour.

If the components of the Automated Work Zone Information System are down for more than 10 days in a month, whether they are consecutive or cumulative, then no payment will be made for that month. The Department reserves the right to deactivate the Automated Work Zone Information System components at any time if the Engineer determines that the system is not
performing in accordance with these specifications, in which no further payment will be made until
the system is restored to a fully operational status.

If a component of the AWIS fails to operate properly on at least 4 calendar days in a 14-day
estimate period, the Engineer may declare that component defective and require the Contractor
to replace the component at no additional cost to the Department.

METHOD OF MEASUREMENT.

(a) AWIS Mobilization. The Automated Work Zone Information System Mobilization will
be measured as a Lump Sum item.

(b) AWIS Operation. The Automated Work Zone Information System Operational Costs
will be measured by the Month. After the system undergoes the Operational Test and
is accepted for use, operation and maintenance of the Automated Work Zone
Information System will be measured for payment by the month based on the number
of days the system is “fully operational” during the project. If the AWIS is “not fully
operational” as defined above, no payment will be made for that portion of the month
and the penalty as defined above will be assessed.

(c) Furnish and Install the Vehicle Detection System, Variable Message Signs, and
Closed Circuit Television System. Furnish and Install the Vehicle Detection
System, Variable Message Signs, and the Closed Circuit Television System will be
measured by the Each.

(d) Device Relocation. After the Operational Test is complete and the system is
accepted for use, Device Relocation will be measured for payment by the Each. A
device relocation is defined as a 20-foot or more relocation of a VDS, VMS, or CCTV
Camera. Approval of the Engineer will be required prior to each move to be eligible
for reimbursement. Final removal of any device from the project will not be
considered device relocation.

BASIS OF PAYMENT.

(a) AWIS Mobilization. Work completed and accepted and measured as provided above
will be paid for at the contract unit price of Lump Sum, which price shall be full
compensation for furnishing the server and software; for testing the AWIS; for testing
of all VDS, VMS, and CCTV cameras; for integration of the AWIS data onto the
www.idrivearkansas.com website; for obtaining all FCC and/or FHWA permits and
licenses; for providing all required cellular and electrical services; and for all materials,
labor, equipment, tools, and incidentals necessary to safely furnish and install this
system.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

AUTOMATED WORK ZONE INFORMATION SYSTEM

(b) Furnish and Install Vehicle Detection System (VDS). Work completed and accepted and measured as provided above will be paid for at the contract unit price of each, which price shall be full compensation for furnishing, installing, and testing the Vehicle Detection Systems; for obtaining all FCC and/or FHWA permits and licenses; for providing all required cellular and electrical services; for furnishing, maintaining, and replacing traffic drums; and for all materials, labor, equipment, tools, and incidentals necessary to safely furnish and install this system.

(c) Furnish and Install Closed Circuit Television System (CCTV). Work completed and accepted and measured as provided above will be paid for at the contract unit price of each, which price shall be full compensation for furnishing, installing, and testing the Closed Circuit Television System; for obtaining all FCC and/or FHWA permits and licenses; for furnishing, maintaining, and replacing traffic drums; and for all materials, labor, equipment, tools, and incidentals necessary to safely furnish and install this system.

(d) Furnish and Install Variable Message Sign (VMS). Work completed and accepted and measured as provided above will be paid for at the contract unit price of each, which price shall be full compensation for furnishing, installing, and testing the Variable Message Signs for obtaining all FCC and/or FHWA permits and licenses; for providing all required cellular and electrical services; for furnishing, maintaining, and replacing traffic drums; and for all materials, labor, equipment, tools, and incidentals necessary to safely furnish and install this system.

(e) AWIS Operation. Work completed and accepted under the item Automated Work Zone Information System operation and measured as provided above will be paid for at the contract unit price bid per Month, which price shall be full compensation for operating, maintaining, inspecting and removing all the components of the AWIS, including the Central Data server; all VMS, all VDS, and all CCTV; for renewing all FCC and/or FHWA permits and licenses; for maintaining the data feed to www.idrivearkansas.com; for providing 24-hour access to a system programmer; for maintaining all required cellular and electrical services; for furnishing, maintaining, and/or replacing traffic drums as needed; and for all materials, labor, equipment, tools, and incidentals necessary to safely maintain this system during construction.

(f) Device Relocation. Work completed and accepted under the item Device Relocation and measured as provided above will be paid for at the contract unit price bid per Each, which price shall be full compensation for approved 20-foot or more relocation of a VDS, VMS, or the CCTV. Relocation of traffic drums shall also be included in this cost.
ARKANSAS DEPARTMENT OF TRANSPORTATION

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JOB NO. CA0604

AUTOMATED WORK ZONE INFORMATION SYSTEM

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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<tr>
<td>AWIS Mobilization</td>
<td>Lump Sum</td>
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<tr>
<td>Furnish and Install Vehicle Detection System</td>
<td>Each</td>
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<tr>
<td>Furnish and Install Closed Circuit Television System</td>
<td>Each</td>
</tr>
<tr>
<td>Furnish and Install Variable Message Sign</td>
<td>Each</td>
</tr>
<tr>
<td>AWIS Operation</td>
<td>Month</td>
</tr>
<tr>
<td>Device Relocation</td>
<td>Each</td>
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</tbody>
</table>
Section 606 Pipe Culverts of the Standard Specifications for Highway Construction, Edition of 2014, is hereby expanded to include the following:

Subsection 606.02(d)(1) is hereby deleted and the following is substituted therefore:

(1) Polyethylene Pipe. The manufacture and furnishing of high density polyethylene pipe ranging in diameter from 18” (450mm) minimum to 48” (1200mm) maximum shall be according to AASHTO M 294, Type S. Polyethylene pipe shall have a corrugated outer shell with an essentially smooth wall waterway. Couplings and fittings supplied or recommended by the pipe manufacturer shall be used.

Subsection 606.02(d)(2) is hereby deleted and the following is substituted therefore:

(2) PVC Pipe. The manufacture and furnishing of PVC pipe ranging in diameter from 18” (450mm) minimum to 36” (900mm) maximum shall be according to ASTM F949, Cell Classification 12454. PVC pipe shall have annular or helical projections or ribs on the outer surface and an essentially smooth wall waterway. Couplings and fittings supplied or recommended by the pipe manufacturer shall be used.

The following is added as Subsection 606.02(d)(3):

(3) Polypropylene Pipe. The manufacture and furnishing of polypropylene pipe ranging in diameter from 18” (450mm) minimum to 60” (1500mm) maximum shall be according to AASHTO M330, Type S. Polypropylene pipe shall have a corrugated outer shell with an essentially smooth wall waterway. Couplings and fittings supplied or recommended by the pipe manufacturer shall be used.

Subsection 606.02(k) is hereby deleted and the following is substituted therefore:

(k) Structural Bedding and Structural Backfill for Plastic Pipe Culverts shall meet the requirements for the material shown in the Plans and shall meet the requirements as shown in Subsection 302.02 of these Specifications except that the maximum particle size shall be 1” (25.4mm) for Structural Bedding and 1½” (37.5mm) for Structural Backfill.

Subsection 606.03.(a) second paragraph is hereby deleted and the following is substituted therefore:

Pipe culverts under the roadbed shall be so placed that the minimum depth of cover for pipe of any diameter or type shall be not less than the minimum cover as shown in the Plans, including a minimum of 12” (304.8mm) of pavement and/or base.

The following is added as Subsection 606.03(h):

(h) Acceptance Testing of Installed Polyethylene, PVC, and Polypropylene Pipe. All plastic pipes installed for storm drainage systems shall be tested for acceptance by the Contractor using a method consisting of, but not limited to, the following: electronic deflectometers, video cameras, or go/no-go mandrel. These tests shall be conducted not less than 30 days following installation of the pipe. The Engineer will witness all tests.
At least 10 percent of the total quantity of each size of plastic pipe installed for storm drainage on the project shall be inspected for deformations using one of the approved methods listed above. The Engineer may select the areas to be tested. If the test indicates excessive deflection in the selected length of pipe, the Engineer may require additional lengths of pipe be tested in increments of 10 percent of the total installed length. Any pipes with a reduced diameter of 5 percent of the actual inside pipe diameter shall be removed and re-laid, if undamaged, or replaced with a new pipe at no cost to the Department. Re-laid pipe and new pipe shall be retested at no cost to the Department.

If the mandrel test is selected, a nine-point mandrel with a diameter equal to 95 percent of the nominal diameter of the pipe shall be used. The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance and shall be designed to prevent tipping from side to side and to prevent debris build-up from occurring between channels of the adjacent fins or legs. Each end of the mandrel shall have fasteners for attaching pulling cables. The mandrel shall have nine various sized fins or legs of appropriate dimensions for various diameter pipes. Each fin or leg shall have a permanent marking that states its designated pipe size. For acceptance testing, the mandrel must pass through the entire section between manholes or other structures in one pass when pulled by hand without the use of excessive force.
DESCRIPTION: This item consists of extending existing pipe culverts at selected locations designated by the Engineer by retaining the existing pipe culverts and constructing a concrete collar as a waterproof seal connection between the existing and proposed pipe culverts.

MATERIALS: Materials shall conform to the requirements of Section 802 for Class S Concrete, and Section 804 for Reinforcing Steel (Grade 40 or Grade 60), of the Standard Specifications for Highway Construction, Edition of 2014.

CONSTRUCTION REQUIREMENTS: The Contractor shall break the existing headwall down to the top of the existing pipe culvert and excavate the material at the bottom of the existing pipe culverts in such a manner that the existing pipe culverts will experience no damage and can remain in place. After placement of the new culvert, the Contractor shall construct a concrete collar as a waterproof seal connection between the existing and proposed pipe culverts. The method used for forming and placing the concrete collar shall be sufficient to seal the joint from leakage as approved by the Engineer. Adequate vibration shall be applied to the concrete to ensure consolidation. Debris from the broken headwalls shall be removed and disposed of as approved by the Engineer.

BASIS OF PAYMENT: There shall be no direct payment made for fulfilling the requirements of this Special Provision. Payment for work completed and accepted as provided above will be considered included in the price bid for the various contract items.
DESCRIPTION:  This item shall consist of removing and reinstalling thrie beam guardrail terminals at the locations shown on the plans or designated by the Engineer, and shall be done in conformity with the plans and in accordance with these specifications.

METHODS:  The thrie beam guardrail terminals to be removed and reinstalled shall be carefully removed from posts and barriers and reinstalled during construction at the locations shown on the plans or designated by the Engineer, in conformity with the plans and specifications.

METHOD OF MEASUREMENT:  Work performed and accepted under this item will be measured by the thrie beam terminal removed and reinstalled.

BASIS OF PAYMENT:  Work performed and accepted under this item shall be paid for at the contract unit price each bid for "Remove and Reinstall Thrie Beam Terminal", which price shall be full compensation for removing and reinstalling Thrie Beam Terminals, removing and reinstalling posts, replacing any damaged or destroyed materials, dismantling and erecting all parts and materials, and for all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove and Reinstall Thrie Beam Terminal</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

WOVEN GEOTEXTILE FABRIC FOR SUBGRADE REINFORCEMENT

Description: This item shall consist of furnishing and installing a woven geotextile for subgrade reinforcement system in close conformity with the lines, grades and dimensions as established by the Engineer.

Materials: Geotextile fabric shall be woven synthetic fiber fabric meeting the following requirements:

The geotextile structure shall remain dimensionally stable under construction stresses and have a high resistance to damage during construction, to ultraviolet degradation and to all forms of chemical and biological degradation encountered in the soil being reinforced.

Provide a woven geotextile with a minimum tensile strength of 1300 lbs/ft in the Cross Machine Direction (CD) at 5 percent strain and minimum tensile strength of 1200 lbs/ft in the Machine Direction (MD) at 5 percent strain when tested in accordance with ASTM D4595. The geotextile fabric shall also meet the requirements of Type 10 geotextile fabric as described in Section 625 of the Standard Specifications for Highway Construction 2014 Edition.

Identify, store and handle geotextile according to ASTM D4873. Limit geotextile fabric exposure to ultraviolet radiation to less than 10 days.

The Contractor shall furnish to the Engineer a production certification that the geotextile supplied meets the respective criteria set forth in these specifications. The certification shall state the name of the Manufacturer, product name, style number, chemical composition of the filaments, ribs, or yarns, and other information to fully describe the fabric. The Manufacturer shall have an on-site GAI-LAP accredited laboratory used for their quality control program. The production lot number must be provided with the supplied material. Quality control test results shall be provided upon request by the Engineer. Independent third party test data used to identify values for creep, durability and installation damage must be included with the production certification.

Construction Methods: The woven geotextile fabric shall be installed at locations shown in the plans or as directed by the Engineer and shall follow Manufacturer’s installation requirements. The woven geotextile fabric shall be oriented such that the roll length is oriented parallel to the centerline. Adjacent rolls shall be overlapped a minimum of 2 feet and shall be tied together using pins or staples, unless otherwise recommended by the Manufacturer. Care shall be taken to ensure that the geotextile fabric sections do not separate at longitudinal or transverse laps during construction. The placement of the geotextile fabric around corners may require cutting and diagonal lapping.
WOVEN GEOTEXTILE FOR SUBGRADE REINFORCEMENT

The geotextile fabric shall be pinned at the beginning of the roll but shall be left free elsewhere to relieve wrinkles or folds in the material during the placement of stone backfill or base material. Sections of geotextile fabric which are damaged by construction activity shall be repaired or replaced at the Contractor’s expense.

Rubber-tired vehicles shall be driven at speeds less than 10 mph and in straight paths over the fabric. A minimum fill thickness of 6 in. is required prior to operation of tracked construction equipment over the fabric. Tracked construction equipment shall not be operated directly upon fabric.

Method of Measurement: Woven Geotextile Fabric will be measured by the square yard of horizontal surface area covered by the material. No measurement will be made for lapping of the material required by the plans or required by the Manufacturer’s installation requirements.

Basis of Payment: Work completed and accepted and measured as provided will be paid for at the contract unit price bid per square yard for Woven Geotextile Fabric, which price shall be full compensation for furnishing, storing, and placing materials; for lapping and/or splicing; for necessary repairs; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woven Geotextile Fabric</td>
<td>Square Yard</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604
CONCRETE BARRIER WALL

Section 631, Concrete Barrier Wall, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth paragraph of Subsection 631.03(d), is hereby deleted and the following substituted therefore:

When completed, the concrete shall be cured as specified in Section 501, except a membrane curing compound shall not be used if a textured coating finish is to be applied.

Subsection 631.05 Basis of Payment is hereby expanded to include the items Concrete Barrier Wall (Side Type _).

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Barrier Wall (Side Type _)</td>
<td>Lin. Ft.</td>
</tr>
</tbody>
</table>
 DESCRIPTION This item shall consist of the noise barrier wall and foundation design, shop drawing preparation, construction plans for the foundations and connections to structures, and construction of lightweight reflective sound barrier walls in accordance with these specifications and in conformity with the locations, dimensions, lines, and grades shown on the plans. All references to Division, Section, and Subsection refer to the Arkansas Department of Transportation Standard Specifications for Highway Construction (2014 Edition).

1.0 GENERAL

1. Sound reflecting noise barrier system shall be of panel and powder coat finished galvanized steel post design. The location and geometry shall conform with project noise wall plans.

2. The noise barrier system shall meet or exceed requirements for freeze/thaw and sound transmission loss, as specified below.

3. The system shall only use lightweight panels as specified below.

4. Lightweight panels shall not exceed 5 pounds per square foot. Steel noise barrier panels are prohibited.

5. The material shall be durable under all weather conditions and shall resist rotting, mold and mildew build-up, rusting, warping, and bird, rodent or insect nesting or infestation.

6. Adequate drainage shall be provided at the base of the wall.

7. The Contractor shall obtain lightweight panels from a single manufacturer.

2.0 PRE-CONSTRUCTION MEETING

A pre-construction meeting shall be scheduled by the Engineer to be held after receipt of the complete noise barrier working drawings and noise barrier wall contractor and noise barrier design engineer qualification submittals. The Engineer; the Contractor; including their Superintendent(s) responsible for construction of roadway barriers and bridge decks upon which various segments of noise barriers are being attached; the noise barrier wall contactor, including the listed onsite supervisor shall attend. Attendance is mandatory. All other parties to be involved with the design, fabrication, construction, or testing of the noise barrier components may be represented. The meeting will be conducted to clarify the requirements of the work, to coordinate the construction schedule and activities, and to identify the contractual relationships and the delineation of responsibilities amongst the parties involved.
SOUND REFLECTING NOISE BARRIERS WITH LIGHTWEIGHT PANELS

3.0 STRUCTURAL REQUIREMENTS

1. Signed and sealed design calculations and shop drawings prepared and/or approved by an Arkansas Registered Professional Engineer shall be submitted to the Engineer for approval, and approval secured before fabrication. See Standard Specification Subsection 807.04 for additional clarification of scope.


3. Make provisions to accommodate thermal and structural movement, including cumulative bridge structure movements at bridge ends, in component parts of system and fastenings without detrimental effects. Shop drawings shall also include details for construction around utilities, drainage structures, and other appurtenances or obstructions.

4. Where posts are to be supported by reinforced concrete drilled shafts, galvanized steel posts may be embedded or attached by baseplate to embedded anchor bolts. Design longitudinal and transverse shaft reinforcing to resist calculated loadings, and detail shaft reinforcing and post connection to shaft in the shop plans.

5. Preformed pads 1/8” thick conforming to Section 808 of the Standard Specifications are required in connections between galvanized steel and concrete bridge structure or moment slabs. Details shall be shown in the shop plans.

4.0 SOUND TRANSMISSION TEST REQUIREMENTS

1. The sound barrier product shall have a minimum STC of 28. The contractor shall submit Sound Transmission Class (STC) test reports per current ASTM E90 requirements for the proposed sound barrier product. These results may be from representative tests completed within five years prior to the date the project is advertised for bid.

2. Acoustic testing shall be completed by an accredited testing laboratory. These tested samples shall:
   a. be made at the facility that will produce the actual panels to be used in this project by the exact same process and material sources as those to be used on the project; and,
   b. have the same thicknesses of panel material, and similar pattern, texture, and same finish as the actual panels to be used in this project.

3. If samples fail the STC test, the Contractor, at his own expense, shall have the option of testing new samples from that source, or selecting another material or another noise barrier supplier that then passes the tests. Failure to meet requirements shall not constitute cause for an excusable project time extension.

5.0 WEATHER TESTING REQUIREMENTS FOR LIGHTWEIGHT PANELS
SOUND REFLECTING NOISE BARRIERS WITH LIGHTWEIGHT PANELS

1. Weather testing composite panels shall have an average of test specimens that show no change in Modulus of Rupture and a change of less than 5.0% in Modulus of Elasticity after 2000 hours when tested in accordance with ASTM D2565.

2. If samples fail the test, the Contractor, at his own expense, shall have the option of testing new samples from that source, or selecting another material or another noise barrier supplier that then passes the tests. Failure to meet requirements shall not constitute cause for an excusable project time extension.

3. ARDOT will accept previously conducted test results in lieu of the testing described above if the following requirements are met:
   a. the tested sample was produced in the same facility that will produce the actual panels for the project by the exact same process and material sources as those to be used on the project;
   b. the tested sample has the same thickness the actual panels to be used in the project;
   c. the test was completed within five years prior to the date the project is advertised for bid; and,
   d. the manufacturer provides a notarized letter explicitly stating that the conditions in 3(a), 3(b), and 3(c) have been met.

4. The Contractor shall provide full documentation of the test results to ARDOT for review and approval.

6.0 MATERIAL FIRE RATING REQUIREMENT

   The noise barrier material shall exhibit a Flame Spread Index of 25 or less (Class A) when tested according to current ASTM E84 requirements.

7.0 NOISE BARRIER SYSTEM SURFACE FINISH

1. Texture: Smooth on both sides.

2. Color: Gray (similar as possible to Aluminum, Federal Std. No. 595B, Color Chip No. 37200)

3. All posts shall be powder coat finished Aluminum matching Fed. Std. 595B, Color Chip No. 37200, after having been galvanized after fabrication.

8.0 SURFACE TREATMENT

Lightweight noise barrier panels shall have color integrated into it through the manufacturing process. No staining/painting is required.

9.0 PRODUCT ACCEPTANCE
SOUND REFLECTING NOISE BARRIERS WITH LIGHTWEIGHT PANELS

1. Production of panels may begin after approval of required tests and pattern and color as specified above.

2. The first panels fabricated shall be erected in the first bay constructed and shall serve as a standard for acceptance for all further work.

10.0 PANEL TRANSPORTATION AND INSTALLATION

1. The manufacturer and trucking company shall insure that all panels are protected during all aspects of truck loading/unloading and transport to the project installation location.

2. Panels having deficiencies such as cracking, crazing, or mottling of finish shall be rejected. Prior to installation, the Contractor shall inspect delivered product for any defects.

3. Written procedures to protect the panels from damage during all phases of installation shall be incorporated into shop drawing notes. The installer shall consult with manufacturer and/or licensee to determine the proper procedures.

4. Installation shall be done such that the horizontal joints between panels shall line up from one bay of panels to the next.

5. Field patching of damage to surfaces shall not be permitted. The damaged panel shall be replaced by the Contractor at his own expense.

6. After installation, the Contractor shall remove dirt from panels with water.

11.0 GRAFFITTI REMOVAL

Graffiti shall be removable from any product using the manufacturer’s recommended process. The manufacturer must provide written instructions to The Department regarding graffiti removal.

12.0 METHOD OF MEASUREMENT

Noise Barriers will be measured by the square foot, as constructed to the dimensions shown on the plans or approved by the Engineer.

13.0 BASIS OF PAYMENT

Noise Barriers, measured as provided above, will be paid for at the contract unit price bid per square foot for “Noise Barrier Wall with Lightweight Panels” which shall be full compensation for designing, making, transporting, installing and inspecting noise barrier systems; for excavating foundations, furnishing and placing all concrete and reinforcing steel in foundations of powder-coat finished galvanized ground-mounted posts; for all elastomeric pads and galvanized steel fasteners and anchors necessary for connection to bridge structure, ground supported roadway barrier, or foundations; for producing sample panels and quality control and acceptance sampling and testing; and for supplying and installing the powder coat finished galvanized steel posts; and for
SOUND REFLECTING NOISE BARRIERS WITH LIGHTWEIGHT PANELS

furnishing all design, tools, labor, equipment and incidentals necessary to complete the work.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise Barrier Wall with Lightweight Panels</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>

14.0 LIST OF POSSIBLE SUPPLIERS

The following are known suppliers of lightweight sound reflecting noise barrier systems for the Contractor's information only. There may be products from other suppliers that will meet the requirements of the plans and this specification.

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Address</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIL</td>
<td>102 W. Hill Street, Decatur, Georgia 30030</td>
<td>Tel: 1-866-231-7867, <a href="mailto:info@ailsoundwalls.com">info@ailsoundwalls.com</a></td>
</tr>
<tr>
<td>ArtUSA</td>
<td>300 Brogdon Road, STE 200, Suwanee, GA 30024</td>
<td>Phone: 1-888-454-6975, <a href="mailto:sales@noisecontrolproducts.com">sales@noisecontrolproducts.com</a></td>
</tr>
<tr>
<td>Durisol, Inc</td>
<td>8640 Broad Street, Rural Hall, NC 27045</td>
<td>Tel: 1-866-801-0999, <a href="mailto:info@durisol.com">info@durisol.com</a>, <a href="http://www.durisol.com">www.durisol.com</a></td>
</tr>
<tr>
<td>Faddis Concrete Products</td>
<td>2206 Horseshoe Pike, Honey Brook, PA 19344</td>
<td>Tel: 610-269-4685, Fax: 610.942.2629, <a href="mailto:info@faddis.com">info@faddis.com</a>, <a href="http://www.faddis.com">www.faddis.com</a></td>
</tr>
<tr>
<td>Sound Fighter Systems</td>
<td>P.O. BOX 7216, Shreveport, LA 71137</td>
<td>Tel: 1-888-924-5762, Fax: 1-318-865-7373, <a href="mailto:info@soundsfighter.com">info@soundsfighter.com</a>, <a href="http://www.soundsfighter.com">www.soundsfighter.com</a></td>
</tr>
</tbody>
</table>
Section 633 Concrete Walks, Concrete Steps, and Hand Railing of the Standard Specifications, Edition of 2014, is hereby amended as follows:

Subsection 633.02 Materials is expanded to include the following:

Reinforcing steel shall comply with Section 804.

Subsection 633.03(c) Placing and Finishing is modified to include the following:

The first sentence of the third paragraph contains the word “steps” which shall be replaced with “the steps and retaining walls”.

Subsection 633.03(d) Backfilling is expanded to include the following:

The retaining wall shall be backfilled per the requirements in Subsection 801.08 Backfill.

Subsection 633.04 Method of Measurement is expanded to include the following:

The area measured for the Concrete Walks (Type Special) will be that of the concrete walk area only.

Subsection 633.05 Basis of Payment is expanded to include the following:

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>Concrete Walks (Type Special)</td>
<td>Square Yard (Square Meter)</td>
</tr>
</tbody>
</table>
1. **DESCRIPTION.** This item shall consist of furnishing and installing at locations shown on the plans or as directed, Master Controller and System Local Controller with communications interface for both IP Addressable Ethernet as well as RS 232 Serial Radio and other associated equipment, to operate as part of an existing traffic-responsive, coordinated traffic control system master. All requirements of Standard Specifications for Highway Construction, Edition of 2014, Division 700 Traffic Control Facilities, and specifically Section 701 Actuated Controller, shall apply. Portions of the standard specifications may be superseded by these special provisions.

   **A. General.** The master shall monitor intersections in the system, display status and operational state, and provide traffic flow data from intersection vehicle detectors. The master shall include all communications equipment and software necessary to provide reporting to a remote terminal as well as upload/download of all local intersection data, and provide timing synchronization. Communications to local controllers from the master shall be by "Radio Communications System" as shown in the plans.

   **B.** The existing system consists of an Eagle TACTICS closed loop traffic control system with communications to local controllers from the master shall be by Simrex DataMover SS-900 Radios. System software is currently licensed to the City and to the State. All equipment shall be completely compatible with existing hardware and software.

   **C. Functional.** The system shall include, as a minimum, the following features:

   - Number of Zones or Masters – 99 (minimum)
   - Number of Intersections per Master – 30 (minimum)
   - Operation Mode Selection (per intersection) – free, manual, automatic and flash;
   - System malfunction diagnostics;
   - Automatic dial up of remote terminal on critical alarm;
   - Upload/download of all traffic data to/from the remote/traffic-master/local controller;
   - Local intersection timing plans – 4 different cycles, 3 offsets per cycle and 4 splits per cycle;
   - Daylight Savings Time adjustment – programmable to be automatic and selected by month of year and week of month;
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CLOSED LOOP TRAFFIC SYSTEM

System detector monitoring – 8 per intersection monitoring at intervals of 15 min. for 48 hours; with a total system capacity to select up to 12 detectors per traffic responsive computational channel;

System detector processing – provide volume and occupancy data with individually selectable weighting, and with failure diagnostics;

Local Monitoring – 8 green returns; pedestrian indications; local detector status per detector; with display updated every second (minimum);

System Monitoring – 1 per minute with intersection status and failure diagnostics;

Reports –
- 24-hour storage period of data
- Failure report
- System status
- Intersection status

2. MATERIALS AND CONSTRUCTION. (Other Special Provisions in this contract may also apply). The cabinet facilities and installation, in addition to standard requirements for Section 701 Actuated Controller, shall incorporate the provisions listed in this special provision in order to accomplish the following:

A. System Local Controller and Conflict Monitor. Where specified as “TS2-Type 2” unit shall utilize SDLC Port and Malfunction Management Unit (MMU) in monitoring for conflict display at the intersection. Where specified as type “TS1” unit shall include SDLC port but be set up in the TS1 mode and utilize a NEMA Standard 12 Channel Monitor. Unit shall have the capability of monitoring intersections utilizing the latest’s proposed operation of “Flashing Yellow Arrow” (FYA) display.

1. Timing Plan Selection. Manual, internal time base and external (remote) selection and coordination;

2. Time Base Coordination. Internal coordination shall be capable of providing a minimum of 4 different cycles, 3 offsets per cycle and 4 splits per cycle, selectable and synchronized either remotely or by internal time base unit. All cycle, offset, split, and signal plan capabilities shall be selectable locally and by remote operation. Programming shall include, but not be limited to the following functions:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CLOSED LOOP TRAFFIC SYSTEM

52-week calendar

Automatic change to Daylight Savings Time (date to be keyboard programmable)

Remote time clock synchronization

Crystal controlled backup timing, accurate to 50 ppm (parts per million)

3. Programming. All functions and controller time settings shall be programmable from the front panel keyboard, and through an RS 232 C. interface to a portable data terminal as well as through the system master. All functions and settings shall be capable of download/upload from/to a Microsoft Windows 10 or later operating system, on an IBM compatible microcomputer. If front panel connector is not a standard RS 232 C-9 pin or 25 pin "D" connector, two adapter harnesses shall be provided, one (per intersection) to remain in cabinet, and one (per system) to be delivered to the Department's Maintenance Division.

4. Expandability. All traffic controllers (timers) shall be not less than 8 Phases. This does not apply to cabinet facilities and conflict monitor which shall conform to the summary of quantities or other provisions in this contract. Detector wiring harnesses or rack mount detector channel slots shall, as a minimum, be wired for future connection for the number of phases as described in the Summary of Quantities or plan sheets (whichever is greater); for a minimum of 8 system detectors; or as governed by other provisions in this contract.

5. Data Processing. Controller shall operate at a minimum processor speed of 233 MHz. The Controller shall provide vehicle detector data for 8 channels of system sampling, and 24 channels local sampling of volume and occupancy.

6. System Local Controller (Special) (SPEC.). This item where called for on the summary of quantities, consists of a System Local Controller with extended phasing and cabinet facilities above the normal requirements of an 8 Phase controller. Cabinet shall have a minimum of 16 load positions but may require additional as described in the plan sheets.

B. On-Street Master. The on-street master along with communications system shall be furnished and installed in the cabinet of the designated local controller or at a site as indicated on the plan sheet(s). All materials, labor, and modifications of the cabinet to accommodate the on-street master shall be considered subsidiary to on-street master.
This shall include providing larger cabinet as necessary to house the master and associated equipment.

The operating modes of the master shall provide for selection of timing plans from manual, time of day, traffic responsive, or free operation of intersections within a group.

C. Communications.

1. **Cellular Modem**: Equipment supplied on this contract shall consist of a cellular modem, antenna, wiring assembly, configuration software, and installation necessary shall be provided and furnished for a working wireless communication connection in accordance with plans and specifications and compatible with the requirements of the traffic operations system software, and the wireless service carrier used by the City. All items that are required to complete the installation and ensure an operational system shall be supplied by the Contractor. All components supplied by the Contractor are the responsibility of the Contractor. It shall be the responsibility of the Contractor and/or their Supplier to furnish, install and configure a cellular modem and a hardened switch at the traffic signal with any necessary cables needed to ensure a working wireless communication connection in accordance with the plans, specifications and compatible with the requirements of the traffic operation system software that the City is using. The Contractor and/or their Supplier shall be responsible for configuring the cellular modem and switches to create a secure VPN tunnel with IP filtering and/or mac filtering between the City’s traffic operation system software and the traffic controller. This includes any configuration needed to the City’s traffic operation system software (TACTICS) to work with the above mentioned items. It shall be the responsibility of the Contractor and/or their Supplier to properly configure and deliver a working communication system as mentioned above and providing two (2) USB drives with backup configuration files of the working configurations for the cellular modem and switches to the City and the Department’s Maintenance Division. Cellular setup shall be coordinated with the City’s Transportation Department and the Department’s Maintenance Division. The City shall be responsible for supplying cellular account. Warranty shall be transferred into the City’s name upon acceptance of the project. A power supply shall be included with the cellular modem as necessary.

The cellular modem shall meet the following requirements:

1. **Model**: Sierra Wireless AirLink RV50X LTE Gateway.
2. Frequency Bands and Cellular Network Interface:
   a. 4G Long Term Evolution (LTE) models:
      i. Tri-band support for 700/1900/2100 Megahertz (MHz).
      ii. Backward compatible with Evolved High Speed Packet Access (HSPA+) and High Speed Pack Access (HSPA).
   3. Transfer rate (max): 300 Mbps down, 50 Mbps up.
   4. Minimum of one 10/100/1000 Ethernet Port (RJ-45).
   6. Minimum of one SMA antenna connector.
   7. Device Configuration and Management Software via web interface.
   8. Communications and Protocols supported:
      a. Network: TCP/IP, UDP/IP, DNS.
      b. NAT and DCHP routing with VLAN, VRRP, and Static Routes configurable.
      c. Includes TELNET, SMTP, SNMP, SMS sessions and services.
      e. GPS: NMEA V3.0, TAIP, RAP.
      f. Provides VPN security with up to five (5) tunnels.
   9. Provide event reporting for GPS/AVL, Network Parameters, Data Usage, Time, Power, and Device Temperature over SMS, SNMP, or email.
   10. Antenna:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CLOSED LOOP TRAFFIC SYSTEM

a. Omni-directional

b. 50 Ohm SMA male connector.

c. Minimum Antenna gain of 2 dBi.

d. Right angle swivel connector that allows antenna to be upright when connected to the cellular modem.

e. Operating Frequencies of 698-896, 1710-2170 and 2396-2700 MHz

11. Light-emitting diode (LED) indicators for Ethernet, power, cellular link/activity and signal strength.

12. Input Voltage: 7 to 36 VDC.

13. Operating Temperature of -30° C to +70° C.

14. Relative Humidity: 90% @ 60° C.

15. Ingress protection: IP64 specifications.

16. Warranty. Provide cellular modem with a 5-year manufacturer’s warranty, transferable to the City. The cellular modem shall carry a warranty (parts, software and labor) of 5 years from the date of shipment. Furnish warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to final written acceptance.

2. Radio Communications System: Equipment supplied on this contract shall consist of Simrex DataMover SS-900 radios with all necessary equipment to communicate with the existing system and be fully compatible with the existing server and existing radio communications system. Each On-Street Master Controller shall have a separate "Master" communications unit, and each System Local Controller shall have a separate "slave" communications unit unless the local controller is in the same cabinet as a master controller. Radio Communications System equipment shall meet the following requirements:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CLOSED LOOP TRAFFIC SYSTEM

<table>
<thead>
<tr>
<th>Radio Parameters</th>
<th>Radio Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>902 – 928 MHz</td>
</tr>
<tr>
<td>Range</td>
<td>5 Miles</td>
</tr>
<tr>
<td>Interface</td>
<td>RS-232</td>
</tr>
<tr>
<td>LED indicator for Sync</td>
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</tr>
<tr>
<td>Output Power</td>
<td>1.0 Watt</td>
</tr>
<tr>
<td>Input Power Voltage:</td>
<td>6 to 30 DC</td>
</tr>
<tr>
<td>Data Characteristics</td>
<td>Selectable 1,200 thru 19,200 bps</td>
</tr>
<tr>
<td>Receiver Sensitivity</td>
<td>-108 dBm or better</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40° C to 70° C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>5% to 95% (Non-condensing)</td>
</tr>
<tr>
<td>Repeat Capabilities</td>
<td>Store and Forward Repeater Capabilities</td>
</tr>
<tr>
<td>Operating Modes</td>
<td>Point-to-Point</td>
</tr>
<tr>
<td></td>
<td>Point-to-Multipoint</td>
</tr>
<tr>
<td></td>
<td>Half or Full Duplex</td>
</tr>
<tr>
<td>FCC Approval</td>
<td>FCC Part 15.247</td>
</tr>
<tr>
<td></td>
<td>No License Requirements</td>
</tr>
</tbody>
</table>

The radio shall be supplied with diagnostic software which shall be used to test the link between the master radio and the remote radio. The software shall detect channels which are not adequate for the transmission of data, and program the exclusion of these frequencies in the selection of frequencies to be scanned. Two sets (not photo copies) of the complete manufacturer specifications and programming manual for the type of radio shall be provided, one copy to the City or County and one copy to the Department’s Maintenance Division.

3. Antenna System: (applies to all types of radio communications systems) shall meet the following requirements:

   a. Local Antenna:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CLOSED LOOP TRAFFIC SYSTEM

b. Master Radio Antenna:

<table>
<thead>
<tr>
<th>Antenna Parameters</th>
<th>Antenna Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Site</td>
<td>Unidirectional (Yagi), Minimum 10dB gain</td>
</tr>
<tr>
<td>Range</td>
<td>5 Miles</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Wind Rating</td>
<td>Minimum: 100 miles per hour</td>
</tr>
<tr>
<td>Connectors</td>
<td>Type “N” Female</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antenna Parameters</th>
<th>Antenna Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Site</td>
<td>Omnidirectional, Minimum 10dB gain</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Wind Rating</td>
<td>Minimum: 100 miles per hour</td>
</tr>
<tr>
<td>Connectors</td>
<td>Type “N” Female</td>
</tr>
</tbody>
</table>

All cables and wiring necessary to connect the radio communications unit to the controller and the antenna shall be furnished and installed by the contractor.

Performance of the antenna system at the connection point to the radio shall meet or exceed the following:

<table>
<thead>
<tr>
<th>Antenna System Parameters</th>
<th>Antenna System Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>DC – 1.5 GHz</td>
</tr>
<tr>
<td>Percent Reflective Power</td>
<td>10% Max to 1000 MHz</td>
</tr>
<tr>
<td>Power Capacity</td>
<td>50 Watts @ 900 MHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>&lt; 0.1 dB</td>
</tr>
<tr>
<td>Slow Rising DC</td>
<td>Voltage: 600 DC</td>
</tr>
<tr>
<td>At. 5 KV/µSec</td>
<td>2000 V</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

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CLOSED LOOP TRAFFIC SYSTEM

<table>
<thead>
<tr>
<th>Current Surge</th>
<th>50,000 Amps. Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impedance</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>100 M. Ohms (Voltage: 100 DC)</td>
</tr>
<tr>
<td>Jacket</td>
<td>Black, UV Protected Polyethylene</td>
</tr>
</tbody>
</table>

Two sets (not photo copies) of the complete manufacturer specifications for the type of antenna(s) shall be provided, one copy to the City or County and one copy to the Department’s Maintenance Division. Specifications must include the exact gain for the antenna. Complete mounting hardware shall be included.

4. **Antenna Cable**: Antenna cable for the Local or Master radios are determined by the distance for the radio connection to the base connection to the antenna (Length). Cable type is typically designate to the plan sheet and shall meet the following requirements:

<table>
<thead>
<tr>
<th>Antenna Cable Parameters</th>
<th>Antenna Cable Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Impedance</td>
<td>50 Ohm</td>
</tr>
<tr>
<td>Max Attenuation</td>
<td>2.5 dB/100 feet at 900 MHz</td>
</tr>
<tr>
<td>Connectors</td>
<td>Type “N” Male</td>
</tr>
<tr>
<td>Cable Spec.</td>
<td>Type 6</td>
</tr>
<tr>
<td>Cable Length</td>
<td>&lt; 100 feet</td>
</tr>
<tr>
<td>Nominal Diameter</td>
<td>&lt; 0.590 inches</td>
</tr>
<tr>
<td>Jacket Type</td>
<td>PE (polyethylene)</td>
</tr>
<tr>
<td>Shield Type</td>
<td>Aluminum Tape/Tinned Copper Braid</td>
</tr>
<tr>
<td>Inner Conductor Type</td>
<td>Bare Copper Clad Aluminum</td>
</tr>
<tr>
<td>Approved or Equal</td>
<td>LMR 600</td>
</tr>
</tbody>
</table>

The antenna cable jacket shall be properly sealed at antenna to prevent entrance of water. Cable shall be supported in accordance with manufacturer’s recommendation. Contractor should refer to detail sheets for minimum requirements.
ARKANSAS DEPARTMENT OF TRANSPORTATION

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CLOSED LOOP TRAFFIC SYSTEM

Prior to connection and activation of radio, contractor shall perform test to determine the reflected power from the cable/antenna system. This shall be measured as the “Percent Reflected Power” (Ω) where:

\[
\text{TX} = \text{TRANSMITTED POWER} \\
\text{RX} = \text{REFLECTED POWER} \\
\Omega = \left(\frac{\text{RX}}{\text{TX}}\right) \times 100 \\
\text{VSWR} = \frac{1+\Omega^{1/2}}{1-\Omega^{1/2}}
\]

The test shall be performed by the contractor in the presence of the Engineer or his representative. Test equipment shall be as approved by the Department’s Maintenance Division. Where test equipment is to be provided on this contract, it may be utilized by the contractor to perform the required test prior to turning the equipment over to the Department. Contractor shall make all adjustments necessary to antenna system, which may include replacing antenna cable or other equipment, as necessary to bring system within acceptable standards.

5. **Lightning Protection** shall meet the following requirements:

<table>
<thead>
<tr>
<th>Lightning Protection Parameters</th>
<th>Lightning Protection Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>DC – 1.5 GHz</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.1:1 Max to 1000 MHz</td>
</tr>
<tr>
<td>Power Capacity</td>
<td>50 Watts @ 900 MHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>&lt; 0.1 dB</td>
</tr>
<tr>
<td>Slow Rising DC</td>
<td>Voltage: 600 DC</td>
</tr>
<tr>
<td>At. 5 KV/μSec</td>
<td>2000 V</td>
</tr>
<tr>
<td>Current Surge</td>
<td>50,000 Amps. Max.</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>100 M. Ohms (Voltage: 100 DC)</td>
</tr>
</tbody>
</table>

6. **Local Radio**: (applies to all types of radio communications systems) One additional communications unit is provided in a location where antenna and cable or existing or as “Emergency Backup Unit” that can be configured by the user for local intersection
operation. This unit shall be paid for as a separate unit item. The radio unit shall meet all specifications of “Local Radio with Antenna” with power supply included, with the exception that no antenna, antenna cable, or cabinet modification will be required. Contractor shall demonstrate the operation of the unit as a replacement of an operating local unit in an intersection within the system.

7. Installation: The unit shall be installed inside the cabinet with the master or local controller unless otherwise approve by the engineer. Installation shall include the radio, antenna, coaxial cable, connectors, lightning protection, wiring harness, and all incidental equipment, tools, and labor necessary to connect the unit with the controller.

D. Ethernet Cable.

1. Cellular Modem: The CAT-6 Patch Cords shall be furnished and installed as needed to connect the Ethernet Switches with other equipment. Cat 6 Patch Cords shall be considered an incidental component for this project and furnished and installed as needed to provide a functional system. All patch cords shall be from the same manufacturer. The patch cords shall be industrial outdoor rated Ethernet cable. The cable shall be riser rated, 24 A.W.G. solid copper, have Polyolefin insulation, UV and oil resistant PE jacket. Pair 1 shall be Blue, White/Blue, Pair 2 shall be Orange, White/Orange, Pair 3 shall be Green, White/Green and Pair 4 shall be Brown, White/Brown. The operating temperature shall be from -40° C to +70° C. The cable shall conform to the following standards: ISO/IEC 11801 ed. 2.2 (2011) Class E Patch, NEMA WC 66, and ANSI/TIA/EIA 568-B.2-1 compliant. Patch Cords shall be compliant to T568B pin configuration (whichever is used). The cable shall be factory made; Contractor or vendor assembled patch cords are not permitted. The patch cords will be certified by the manufacturer for Category 6 performance criteria. The contractor shall obtain the length of the patch cords as needed, excessive slack is not permitted.

E. Portable Data Terminal. See Portable Data Terminal Special Provision (if specified in plans).

F. Backup Operation. The local controller shall provide the backup operation. Upon loss of signal from the on-street master for a selectable length of time, local intersection shall revert to Time Base operation.
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CLOSED LOOP TRAFFIC SYSTEM

Upon restoration of power, all intersections shall automatically resume on-line operation without intervention of operator.

G. Traffic Timer Unit. Unit shall meet all requirements of System Local Controller with the exception that cabinet, conflict monitor, load switches, relays and other facilities are not required. Traffic Timer Unit shall be a full 8 Phase unit (A, B and C NEMA connectors).

H. Controller Manuals and Documentation. All documentation and software shall be provided a minimum of 14 calendar days before commencement of the 30-day trial period. The 30-day trial period will not start until this as well as other requirements for system operation have been met. Controller manuals (software and software manuals), must be provided 14 calendar days prior to placing intersection into operation.

Two sets (no photo-copies) of controller manuals shall be provided, one copy to the City or County and one copy to the Department's Maintenance Division.

I. System Timing and Operation Test. The 30-day performance test shall not commence on any portion of the system until all test have been performed by the contractor to the satisfaction of the Engineer in the presence of the Department. Timing data will be provided by the Department's Maintenance Division. The contractor shall give the Engineer a minimum of 14 calendar days’ notice to requiring timing data for testing and setup. Contractor shall be responsible for verification that data provided shall be functional and shall notify the Department’s Maintenance Division of any changes necessary prior to installation.

In the event that the contractor is not qualified to perform these test and verification, he will be responsible for seeing that a manufacturer’s representative is present on the day of testing.

H. Documentation, System Timing and Operation Test. All documentation and software shall be provided a minimum of 14 calendar days before commencement of the 30-day trial period. The 30-day trial period will not start until this as well as other requirements for system operation have been met. All detectors must be fully operational and functioning properly. Controller manuals, software and software manuals must be provided 14 calendar days prior to placing intersection into operation.

Two sets (not photo-copies) of controller manuals shall be provided, one copy to the City or County and one copy to the Department's Maintenance Division.

The 30-day performance test shall not commence on any portion of the system until all test have been performed by the contractor to the satisfaction of the Engineer in the
presence of the Department. Timing data will be provided by the Department’s Maintenance Division. The contractor shall give the Engineer a minimum of 14 calendar days’ notice prior to requiring timing data for testing and setup; but not before delivery of all software and documentation. Test shall include demonstration that all timing plans are selectable through the system master; revert to "Time Base Coordination" upon failure of communications; traffic responsive timing plan selection; and manual selection of timing plans.

Contractor shall be responsible for verification that data provided shall be functional and shall notify the Department’s Maintenance Division of any changes necessary prior to installation.

In the event that the contractor is not qualified to perform these test and verification, he will be responsible for seeing that a manufacturer’s representative is present on the day of testing.

3. METHOD OF MEASUREMENT. Completed and accepted items will be measured as follows:

A. System Local Controller will be measured by the unit.
B. On-Street Master Controller will be measured by the unit.
C. Cellular Modem will be measured by the unit.
D. Local Radio with Antenna will be measured by the unit.
E. Antenna Cable of the type specified will be measured by the linear foot.
F. Master Radio with Antenna will be measured by the unit.
G. Local Radio will be measured by the Unit.
H. Traffic Timer Unit is included in other items of the contract.

4. BASIS OF PAYMENT. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid as follows

A. System Local Controller - Price bid for system local controller and associated equipment of the phases specified, shall be full compensation for furnishing all equipment for providing the foundation, and mounting the cabinet; for installing, wiring and testing the controller and communications unit; for excavation and
closed loop traffic system

backfilling; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

B. **On-Street Master Controller** - Price bid for on-street master controller and associated equipment shall be full compensation for furnishing the equipment, modifying and/or replacing the controller cabinet; for installing, wiring and testing the system software, master, and communication system; and for all materials, equipment, tools, labor and incidentals necessary to complete the work.

C. **Cellular Modem** - Price bid for Cellular Modem of the type specified shall be full compensation for furnishing, installing and testing the modem; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

D. **Local Radio with Antenna** - Price bid for Local Radio with Antenna shall be full compensation for furnishing the radio, supplying the antenna, cable and wiring, mounting, lightning protection, and testing the system; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

E. **Antenna Cable (Type __)** - Price bid for Antenna Cable of the type specified shall be full compensation for furnishing, installing and testing the cable; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

F. **Master Radio with Antenna** - Price bid for Master Radio with Antenna shall be full compensation for furnishing the radio, supplying the antenna, cable and wiring, mounting, lightning protection, and testing the system; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

G. **Local Radio Unit** - Price bid for Local Radio Unit shall be full compensation for furnishing and installing the equipment; for setting up or programming the radio, and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

H. **Traffic Timer Unit** – Work completed and accepted under this item will not be paid separately, but shall be included in the cost of other items of the contract.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

CLOSED LOOP TRAFFIC SYSTEM

Payment shall be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Local Controller TS2-Type 2 (___Phases)</td>
<td>Each</td>
</tr>
<tr>
<td>On-Street Master Controller</td>
<td>Each</td>
</tr>
<tr>
<td>Cellular Modem</td>
<td>Each</td>
</tr>
<tr>
<td>Local Radio with Antenna</td>
<td>Each</td>
</tr>
<tr>
<td>Local Radio</td>
<td>Each</td>
</tr>
<tr>
<td>Master Radio with Antenna</td>
<td>Each</td>
</tr>
<tr>
<td>Antenna Cable (Type ___)</td>
<td>Linear Foot</td>
</tr>
<tr>
<td>Emergency Backup Local Radio Unit</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ACTUATED CONTROLLER

Section 701 Actuated Controller of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The second paragraph of Subsection 701.02 Materials (a) General is hereby deleted and the following substituted therefore:

Prior to the ordering of all traffic signal equipment, the Contractor shall submit to the Engineer two (2) printed copies of the applicable brochures containing the design criteria for the equipment which the Contractor proposes to install for approval. The specific items that are proposed for use shall be clearly marked in the applicable brochures. A list shall be attached to identify the item and contain the manufacturer, quantity, model, and identifying descriptions of each item. Adequate engineering data, essential shop drawings, and schematic diagrams shall be provided for review. Partial submittals will not be accepted for consideration and shall be returned for correction without review.

1. Review. For all traffic signal equipment submittals, the Engineer's review of the equipment submittals should be completed within thirty (30) days from the date of the submission unless otherwise specified. Once the Engineer has determined that the equipment submitted meets the design criteria, a written approval will be provided, in which no further action is required. If equipment submitted for use is rejected, the Contractor shall re-submit the equipment for review within fifteen (15) days of notification of equipment rejection. Resubmittal of rejected equipment for review will be considered the starting point of a new approval cycle as described.
DESCRIPTION. This item shall consist of furnishing all materials, equipment, tools and labor necessary, and modifying an existing traffic signal control cabinet to operate as indicated on the plan sheets. All construction and materials shall be in accordance with the Standard Specifications for Highway Construction, Edition of 2014, unless superseded by this special provision.

MATERIALS. Contractor shall supply all necessary load switches, relays, lightning suppression, terminal facilities, wiring harnesses and incidentals necessary to achieve operation as shown on the plan sheet(s). This shall include any reprogramming and modification of conflict monitor.

CONSTRUCTION REQUIREMENTS. The contractor shall perform all work possible that will minimize the time that the intersection is out of operation. If, in the opinion of the engineer, traffic conditions warrant, contractor shall provide flagmen to direct traffic while intersection is out of service.

The contractor shall make all modifications to the controller cabinet and intersection wiring necessary to accommodate entrance and wiring of the facilities. This includes wiring in place any additional wiring harnesses necessary to accommodate new or modified equipment and removing designated equipment from the cabinet.

Any equipment removed shall be disposed of as described on the plan sheets, or turned over to the Engineer.

A new set of cabinet diagrams shall be provided for any changes that are made.

METHOD MEASUREMENT. Traffic Signal modification will be measured by the unit price bid per each.

BASIS OF PAYMENT. Work completed, accepted and measured as provided above will be paid for at the contract unit price bid for each Traffic Signal Controller (Modification), which price shall be full compensation for furnishing all equipment required; mounting, wiring and testing; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Controller (Modification)</td>
<td>Each</td>
</tr>
</tbody>
</table>
Section 701 Actuated Controller of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 701.02 (d) (10) Wiring Diagrams and Controller Manual is hereby deleted and the following substituted therefore:

Three copies of the Cabinet Wiring Diagram and one copy of the controller manual shall be supplied with each cabinet. One diagram and the manual shall be placed in the “Cabinet Drawer Assembly”. The “Cabinet Drawer Assembly” shall be fabricated to the approximate dimensions shown on the plans. Included with the “Cabinet Drawer Assembly” will be all hardware necessary to fasten and install the Assembly to the underside of a cabinet shelf roughly at the midpoint of the Cabinet vertically. One diagram shall be delivered to the City or County before final inspection of the intersection. One diagram shall be given to the Engineer.

The “Cabinet Drawer Assembly” shop drawing shall be included in the traffic equipment submittal.
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SPECIAL PROVISION

JOB NO. CA0604

INTELLIGENT TRANSPORTATION SYSTEM CABINET

1. **Description.**
   This item shall consist of furnishing and installing an Intelligent Transportation System (ITS) cabinet including grounding, wiring, surge protection, mounting hardware and all other associated equipment according to the specifications of this Special Provision, *Standard Specifications for Highway Construction 2014 Edition* and plans at the locations shown on the plans for the subject Job or as directed by the Engineer.

2. **Materials and Construction.**
   The ground ITS cabinet shall be *Daktronics 336S Ground Mount Traffic Cabinet* and shall include all items, equipment and meet the specifications as shown in the attached shop drawing to this Special Provision at locations shown on the plans.

   The wall mounted cabinet shall be *Daktronics Power & Control Enclosure (Wall Mount) Cabinet* and shall include all items, equipment and meet the specifications as shown in the attached shop drawing to this Special Provision at locations shown on the plans.

   The pole mounted cabinet shall be *Ameresco Solar BBA-3 Enclosure Cabinet* and shall include all items, equipment and meet the specifications as shown in the attached shop drawing to this Special Provision at locations shown on the plans.

   All ground and wall mounted ITS cabinets shall be as follows:
   a. All cabinets shall be NEMA 3R rated.
   b. No logo shall be allowed on the cabinets.
   c. The cabinets doors shall have a tumbler lock keyed for a Corbin No.2 key.
   d. All cabinets shall include mounting hardware, brackets, bolts, nuts, washers and all necessary materials to mount the cabinet as shown in plans.
   e. All cabinets shall be wired at the manufacturer’s facility and ready to be installed by the Contractor. Wiring of cabinets shall be neat, firm and in accordance with what is shown on the plans and the manufacturer’s cabinet design and specifications.
   f. All cabinets shall include surge protection as described in the shop drawings.
   g. All cabinets shall have spare DIN rails, standoff metal bars or a metal backplate for additional equipment to be mounted in the future.
   h. All power related conductors (including grounding) in the cabinets shall be wired as shown in the plans or as directed by the Engineer. Refer to Illumination layout and
Details plan for more details. Ground rod shall be accordance with the plans and Standard Drawings (SD-11) or as directed by the Engineer.

i. Two hard copies of the cabinet wiring diagram shall be provided for each cabinet.

j. Two hard copies of the Vanguard Field Controller manual shall be provided to the ITS Management Section.

k. Mounting pad shall be provided for the ground mounted cabinets and shall be constructed as shown on the plans or as directed by the Engineer.

l. Each cabinet shall include all items in the shop drawings attached to this Special Provision including the followings per cabinet:
   i. Vanguard VFC controller
   ii. Two 24V power supplies part number PS190A-2
   iii. 120VAC panel board with GFCI outlets
   iv. DC power Distribution rail
   v. Fiber patch Panel for the VFC controller
   vi. Grounding bar
   vii. Surge suppressor
   viii. Thermostatic exhaust fan
   ix. Ceiling mounted light
   x. Rack mount drawer for the ground mounted cabinets and documentation storage for the bridge mounted cabinet.
   xi. Reusable/washable filter with metal frame.

m. Includes all wiring from cabinet to future weather and road sensor equipment or other ITS equipment at locations shown in the plans.

n. The Contractor shall be responsible to drill holes in the bottom of the wall mounted cabinets to install the two 3 inch conduit using threaded conduit terminal adaptors, nuts, bushing and rubber grommets to allow for the 3 inch conduit to be attached to the cabinets. All cabinets shall maintain the NEMA 3R rating.

All pole mounted ITS cabinets shall be as follows:

a. All cabinets shall be NEMA 3R rated.

b. No logo shall be allowed on the cabinets.

c. Include mounting hardware, brackets, bolts, nuts, washers and all necessary materials to mount the cabinet as shown in plans.

d. Cabinets shall have spare DIN rails, standoff metal bars or a metal backplate for additional equipment to be mounted in the future.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

INTELLIGENT TRANSPORTATION SYSTEM CABINET

e. All power related conductors (including grounding) in the cabinets shall be wired as shown in the plans or as directed by the Engineer. Refer to Illumination layout and Details plan for more details. Ground rod shall be accordance with the plans and Standard Drawings (SD-11) or as directed by the Engineer.

f. Each pole mounted cabinet shall include all items in the shop drawings attached to this Special Provision including the followings per cabinet:
   i. 120VAC panel board with GFCI outlets
   ii. Grounding bar
   iii. Surge suppressor

g. Includes all wiring from cabinet to future weather and road sensor equipment or other ITS equipment at locations shown in the plans.

h. The Contractor shall be responsible to drill holes in the bottom of the pole mounted cabinets to install the two 3 inch conduit using threaded conduit terminal adaptors, nuts, bushing and rubber grommets to allow for the 3 inch conduit to be attached to the cabinets. All cabinets shall maintain the NEMA 3R rating.

3. System Warranty and testing
   a. The Contractor shall be responsible for seeing that the Daktronics ITS cabinet supplier representative is present on the day(s) of turning the equipment on for testing.
   b. The contractor shall be responsible to ensure correct operation of each cabinet as a separate unit and the system as a whole on the day of testing. The Contractor shall preform all work possible that will minimize the time that the system is out of operation.
   c. The Contractor shall preform a 30-day performance test. The 30 day performance test shall not commence on any portion of the system until all tests have been performed by the Contractor to the satisfaction of the Engineer in the presence of the Department’s ITS Management Section representative.
   d. The Contractor shall repair any issues that occur during the test period at no cost to the Department. The testing period shall be 30 days and shall be determined by the Engineer over this project. It is the Contractor’s responsibility to ensure a complete and correct operation of the ITS cabinets including all equipment and items.
   e. Any equipment that fail during the 30 day performance test will not be accepted nor paid for. The contractor will be responsible to correct any items at no cost to the Department.
ARKANSAS DEPARTMENT OF TRANSPORTATION

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INTELLIGENT TRANSPORTATION SYSTEM CABINET

f. Any equipment that fail during the 30 day performance test will result in stopping the 30 day performance test and starting it over once corrections are made by the Contractor.

g. The Contractor will be responsible to provide a warranty of ITS cabinets, all equipment and materials for a period of not less than (1) one year from the day of acceptance.

h. The complete assembly and its components/equipment shall be warrantied by the supplier for all materials and parts for the period of not less than one (1) year from the date that the assembly is placed into service. Any failure parts or components shall include replacement at no additional cost (including materials and shipping).

i. In the event of any damages to the ITS cabinet and/or any equipment/properties during construction and the test period, the Contractor shall be responsible of replacing any damaged equipment and/or properties with new equivalent from the same brand, type, and size at no cost to the Department.

4. Method of measurement.
   Accepted ITS Cabinet to the satisfaction of the Engineer will be measured by the unit. One unit shall include all items that is listed in this Special Provision, attached shop drawings and plans.

5. Basis of Payment.
   Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for ITS cabinet, which price shall be full compensation for furnishing and installing the ITS cabinet and all included items, installing the wiring and testing all equipment and items within the cabinet and for all materials, labor, equipment, tools and incidentals necessary to complete the work.

   Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Mounted ITS Cabinet</td>
<td>Each</td>
</tr>
<tr>
<td>Pole Mounted ITS Cabinet</td>
<td>Each</td>
</tr>
</tbody>
</table>
1. **DESCRIPTION.** This item consists of furnishing and installing a Road Weather Information System, hereby referred to as a RWIS, mounted on a tilt tower, antenna pole, traffic signal pole, overhead sign structure, or a radio tower at locations designated on the plan sheets or as directed by the Engineer. All construction and materials shall be in accordance with the Standard Specifications of Highway Construction, Edition of 2014, with applicable supplemental specifications.

2. **MATERIALS.** The RWIS shall be the Lufft NIRs31-UMB non-invasive road weather sensor and or the StaRWIS-UMB - stationary road weather information sensor system. The power and data transmission wiring for the RWIS shall be RWIS cabling that contains all the necessary wires for a fully functioning operation. The cable shall be of the same manufacturer as the RWIS or another manufacturer approved by the camera manufacturer. The plug connectors shall be connected to the RWIS mounted on a steel structure via weather-tight connections. Mounting hardware shall be of the same manufacturer as the camera and utilize a pole mounting adapter. The RWIS shall include a power supply that is to be mounted inside the aluminum or stainless steel cabinet or other approved NEMA 3R enclosure. See “ITS Cabinet” Special Provision for details. The camera system power supply shall be of the same manufacturer as the RWIS. The RWIS power supply shall be able to withstand an operating temperature range of -34° C to 60° C minimum. Input voltage for the power supply shall be 120 VAC and output voltage for the camera and heater shall be 24 V/4A. The power supply shall be rack mounted or DIN rail mounted in a NEMA 3R enclosure. Power cable for the power supply should be of the type and size recommended by the manufacturer. The PTZ camera shall also come with lightning surge suppression equipment as recommended by the manufacturer.

3. **CONSTRUCTION REQUIREMENTS.** Contractor shall provide all mounting hardware, tools, equipment, lightning surge suppression equipment, wiring, and labor necessary to complete the installation. Construction shall be as shown on the plan sheets or as directed by the Engineer.

4. **METHOD OF MEASUREMENT.** Completed and accepted RWIS shall be measured by the unit.
Basis of Payment. Work completed, accepted, and measured as provided above will be paid at the contract unit price bid for RWIS which price shall be full compensation for furnishing the camera and associated cables and hardware, wiring and testing, mounting hardware, Ethernet cable, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Weather Information System</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ANTENNA SUPPORT

1. **DESCRIPTION.** This work consists of furnishing all materials, constructing and erecting an antenna support in accordance with the plans and specifications.

2. **MATERIALS.** Pole may be of either steel or aluminum. Pole may be either round tapered, multisided tapered, or as required by the Plans. Pole and hardware, unless superseded by this special provision or the detail sheet(s), shall meet the minimum requirements under the Standard Specifications for Highway Construction, Edition of 2014.

   **Section 714 Traffic Signal Mast Arm and Pole with Foundation** of the Standard Specifications for Highway Construction, Edition of 2014, shall apply to all units of steel design as well as hardware for units of other material.

   **Section 724 Overhead, Bridge Mount, and Cantilever Sign Structure** of the Standard Specifications for Highway Construction, Edition of 2014, shall apply to poles and mast arms for units of aluminum design.

   Aluminum alloy surfaces contacting concrete foundations and steel surfaces shall be coated with or bedded in, an aluminum caulking compound such as alumlastic or other suitable material approved by the Engineer.

3. **CONSTRUCTION REQUIREMENTS.**

   **A. Structural Design.** Structural design must be certified by a registered engineer representing the manufacturer to conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th edition (2001) with 2003 and 2006 interims. As a minimum, the diameter of the lower end of the shaft shall not be less than 8.0 inches with taper to a diameter of at least 3.4 inches at the top. Poles may be two-piece, slip-fitted of adequate design.

   **Nut Covers** - required for "shoe base" only.

   **Hand Hole, Size (Inside Dim.)** – 4 in. width x 6 in. height.

   **Anchor Bolts.** Anchor bolts shall be of sufficient size and strength, and meet the requirements of **Section 714 Traffic Signal Mast Arm and Pole with Foundation** of the Standard Specifications for Highway Construction, Edition of 2014.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ANTENNA SUPPORT

B. Transformer Base. Where designated in the Unit Items as "T-Base", a transformer base shall be furnished and installed as per manufacturer's recommendation. Unless otherwise specified, transformer base is not required to be of breakaway design. Transformer base shall be permanent mold casting of Aluminum Alloy 356-T6 or equal as specified by the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th edition (2001) with 2003 and 2006 interims. Bases shall be a minimum of 16 inches high and basically square in cross section. The dimensions shall be approximately those dimensions shown on the plans. Any change in dimension, approved by the Engineer, shall not lessen the design load strength of the base.

A detail sheet illustrating the proper installation of the transformer base shall be supplied to the Department.

Poles not requiring “T-Base” shall be designated in the unit items as "Shoe Base”.

C. Foundation. The design of the foundation shall meet the design requirements for the drilled shaft foundation dimensions and reinforcing given in the plans and on Standard Drawing SD-1 (Antenna Pole).

4. METHOD OF MEASUREMENT. Work completed and accepted under this item shall be measured by the unit. Pole "Base" shall refer to the requirement to furnish either T-Base or Shoe Base meeting the requirements of this special provision and all associated hardware and wiring. Height (Ht.) shall refer to the nominal height of the pole including base.

5. BASIS OF PAYMENT. Equipment and labor supplied under this item shall be measured separately by the unit; which price shall be full compensation for furnishing and installing the pole and T-Base (where required); for excavation, backfill, compaction, and removal of surplus material; for furnishing and placing reinforcing steel and concrete; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna Support (Shoe Base, _____’ HT.)</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

PAN-TILT-ZOOM CAMERA SYSTEM

1. DESCRIPTON. This item consists of furnishing and installing a Pan-Tilt-Zoom Camera, hereby referred to as a PTZ Camera, mounted on a traffic signal pole, roadway illumination pole, an overhead sign structure, or a radio tower at locations designated on the plan sheets or as directed by the Engineer. All construction and materials shall be in accordance with the Standard Specifications of Highway Construction, Edition of 2014, with applicable supplemental specifications.

2. MATERIALS. The PTZ Camera shall be an Axis Q6135-LE Network Camera. The power and data transmission wiring for the camera system shall be an Ethernet Cat5e Power over Ethernet (PoE) cable that contains all the necessary wires for a fully functioning operation. The cable shall be of the same manufacturer as the camera or another manufacturer approved by the camera manufacturer. The RJ-45 plug connectors shall be connected to the camera mounted on a steel structure via weather-tight connections. Mounting hardware shall be of the same manufacturer as the camera and utilize a pole mounting adapter. The camera system shall include a power supply that is to be mounted inside the aluminum or stainless steel cabinet or other approved NEMA 3R enclosure. See “ITS Cabinet” Special Provision for details. The camera system power supply shall be of the same manufacturer as the PTZ Camera. The camera power supply shall be able to withstand an operating temperature range of -34° C to 60° C minimum. Input voltage for the power supply shall be 120 VAC and output voltage for the camera and heater shall be 24 V PoE. The power supply shall be rack mounted or DIN rail mounted in a NEMA 3R enclosure. Power cable for the power supply should be of the type and size recommended by the manufacturer. The PTZ camera shall also come with lightning surge suppression equipment as recommended by the manufacturer.

A. Ethernet Cable

1. The Ethernet cable shall be environmentally hardened, outdoor rated 350 MHz Category 5e cable. The cable shall be riser rated, 24 AWG solid copper, have Polyolefin insulation, UV and oil resistant PVC jacket. Pair 1 shall be Blue, White/Blue, Pair 2 shall be Orange, White/Orange, Pair 3 shall be Green, White/Green and Pair 4 shall be Brown, White/Brown. The operating temperature shall be from -40° C to +70° C. The cable shall conform to the following standards: ISO/IEC 11801 Category 5e, NEMA WC 63, and ANSI/TIA/EIA 568-B.2 Category 5e. The cable shall be without splicing or joints for a single run. The contractor shall obtain instructions from the manufacturer about alternate architecture when length of a single run of CAT 5e cable exceeds 320 feet.

2. The RJ-45 plug connectors shall be used at both the camera and cabinet ends. The supplier of the PTZ Camera System shall approve the Category 5e cable,
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

PAN-TILT-ZOOM CAMERA SYSTEM

RJ-45 connector and crimping tool and the manufacturer’s instructions must be followed to insure proper connection.

3. CONSTRUCTION REQUIREMENTS. Contractor shall provide all mounting hardware, tools, equipment, lightning surge suppression equipment, wiring, and labor necessary to complete the installation. Construction shall be as shown on the plan sheets or as directed by the Engineer.

4. METHOD OF MEASUREMENT. Completed and accepted PTZ Camera System shall be measured by the unit.

5. BASIS OF PAYMENT. Work completed, accepted, and measured as provided above will be paid at the contract unit price bid for PTZ Camera System which price shall be full compensation for furnishing the camera and associated cables and hardware, wiring and testing, mounting hardware, Ethernet cable, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTZ Camera System</td>
<td>Each</td>
</tr>
</tbody>
</table>
DESCRIPTION. This item consists of removing and reinstalling a span wire mounted or mast arm pole mounted signal head as shown in the plans or as directed by the Engineer.

MATERIALS. Contractor shall be paid the unit price bid for furnishing and installing signal cable necessary for relocation of the designated signal head.

CONSTRUCTION REQUIREMENTS. Contractor shall be allowed to splice signal cable inside signal head or inside pole bases. A separate multiple conductor traffic signal cable shall be installed from the pole base to each signal head on the pole unless otherwise directed.

METHOD OF MEASUREMENT. Signal head relocation shall be measured by the unit.

BASIS OF PAYMENT. Work completed, accepted and measured as provided above will be paid for at the contract unit price bid for each signal head removed and reinstalled; which price shall be full compensation for furnishing equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relocation of Traffic Signal Head</td>
<td>Each</td>
</tr>
</tbody>
</table>
Section 706 Traffic Signal Head of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The ninth paragraph of Subsection 706.02 Materials (c) Housing is hereby deleted and the following substituted therefore:

Visors and backplates for metal signal sections shall be made from 0.050” (1.25 mm) minimum thickness aluminum alloy sheet.

- The minimum thickness of 0.050” does not include the retroreflective border.
- Backplates shall not be flexible nor of the hinged design.
- The backplate shall be louvered.
- A louvered backplate shall include louvers with no louvers closer than 0.5” from the inner or 2.5” from the outer edge. Sides are defined on how the signal head is oriented in the plans.
- The backplate shall have a 2” wide yellow (non-fluorescent) retroreflective sheeting border, placed flush with the outer edge of the backplate and placed no closer than 0.5” from all louvers. No sheeting is allowed over any louvered area.
- Sheetings shall be applied in such a manner to provide wrinkle and bubble free surfaces. Application of sheeting shall be in accordance with this special provision otherwise will be cause for rejection of materials due to workmanship.
- The sheeting shall be Type VIII, Type IX, or Type XI in accordance with ASTM D4956 or ASTM D4956-05 and listed on ARDOT’s qualified product list.
- All applicable brochures containing the design criteria for the retroreflective sheeting border shall be submitted by the Contractor for approval.
- The sheeting shall be applied in the orientation for the maximum angularity according to the manufacturer’s recommendations to project rectangular appearance at night.
- All backplates types shall be securely attached to the signal-head as recommended by the manufacture’s specifications and methods.

The tenth paragraph of Subsection 706.02 Materials (c) Housing is hereby deleted and the following substituted therefore:

Visors and backplates for plastic signal faces shall be either formed from sheet plastic or assembled from one or more injection, rotational, or blow molded plastic sections with a minimum thickness of 0.10” (2.5 mm).

- The minimum thickness of 0.10” does not include the retroreflective border.
- Backplates shall not be flexible nor of the hinged design.
- The backplate shall be non-louvered.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

RETROREFLECTIVE BACKPLATES

- The backplate shall have a 2" wide yellow (non-fluorescent) retroreflective sheeting border, placed flush with the outer edge of the backplate.
- The sheeting shall be Type VIII, Type IX, or Type XI in accordance with ASTM D4956 or ASTM D4956-05 and listed on ArDOT’s qualified product list.
- All applicable brochures containing the design criteria for the retroreflective sheeting border shall be submitted by the Contractor for approval.
- The sheeting shall be applied in the orientation for the maximum angularity according to the manufacturer’s recommendations to project rectangular appearance at night.
- All backplates types shall be securely attached to the signal-head as recommended by the manufacture’s specifications and methods.
1. **DESCRIPTION.** This item shall consist of furnishing and installing Countdown Pedestrian Signal Heads and components based on Light Emitting Diode (LED) technology according to these specifications as well as **Section 707 Pedestrian Signal Head** of the Standard Specifications for Highway Construction, Edition of 2014, subject to approval of the engineer. The basic configuration consists of the “filled”, symbolic single section design. Portions of the standard specifications will be superseded by these special provisions.

2. **MATERIALS.** The LED modules shall be suitable for span wire and mast arm mounted signals. Units must meet the following specifications to be accepted.

   **(A) Physical and Mechanical.** LED pedestrian signal modules designed shall not require special tools for installation. Retrofit replacement LED signal modules shall fit into existing pedestrian signal housings built to the VTCSH Standard without modification to the housing. Installation of a retrofit replacement LED signal module into an existing signal housing shall only require the removal of the existing optical unit components, i.e., lens, lamp, and gaskets; shall be weather tight and fit securely in the housing; and shall connect directly to existing electrical wiring utilizing spade connectors. It shall not be necessary to remove reflector or lamp module. Reflector and lamp module is not required where new housings are provided.

   The countdown feature will be displayed only during the flashing “Don’t Walk” segment of the pedestrian phase. This feature should be able to restart at the correct part of the signal cycle after a power outage or a signal pre-emption has been activated.

   **(B) Optical Requirements.** The modules shall be measured per ITE specifications, and are required to meet luminous values that are a minimum of 115 percent greater than the required minimum values in the specifications at the time of production. The YELLOW modules shall be tested for luminous output at 25°C, allowing the modules to achieve thermal equilibrium for 60 minutes, while the modules are energized at nominal operating voltage, at a 8.3% (or 1/12) duty cycle or 5 sec on/55 sec off). The yellow modules shall meet all other ITE specifications.

   **(C) Optical Unit.** LED signal modules shall meet the following requirements:

   - **Optical Unit Replacement** - The LED module shall be constructed to allow the replacement of the outer lens and/or the light engine when needed.

   - **Lens Surface** - The external lens shall be smooth on the outside to prevent excessive dirt/dust buildup.

   - **Chromaticity** - The measured coordinates of LED signal modules shall conform to the chromaticity requirements of Section 8.04 and Figure 1 of the VTCSH standard.

   - **Environment** - The LED signal module shall be rated for use in the ambient operating temperature range, measured at the exposed rear of the module, of -40°C (-40°F) to +74°C (+165°F). The LED sign module shall be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991, sections 4.7.2.1 and
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604
LED COUNTDOWN PEDESTRIAN SIGNAL HEAD

4.7.3.2, for Type 4 enclosures to protect all internal LED, electronic, and electrical components. The LED signal module lens shall be UV Stabilized.

Pre assembly - The LED signal module shall be a single, self-contained device, not requiring on-site assembly for installation into an existing pedestrian signal housing. The power supply for the LED signal module may be either integral or packaged as a separate module. The power supply may be designed to fit and mount inside the pedestrian signal housing adjacent to the LED signal module. The assembly and manufacturing process for the LED signal assembly shall be designed to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

LED Drive Circuitry (parallel) - The individual LED light sources shall be wired so that a catastrophic failure of one LED light source will result in the loss of only that one LED light source, and the loss of no more than 1% of the total LED'S within the LED signal module.

Material Composition - Materials used for the lens and signal module construction shall conform to ASTM specification for the materials where applicable. Enclosures containing either the power supply or electronic components of the signal modules shall be made of UL94VO flame retardant materials. The lens of the signal module is excluded from this requirement.

Identification Markings - Each individual LED signal module shall be identified for warranty purposes. Each LED signal module shall be identified on the backside with the manufacturer's name and serial number. The following operating characteristics shall be identified: nominal operating voltage, power consumption, and Volt-Ampere. Modules shall have a prominent and permanent vertical indexing indicator, i.e. UP ARROW or the word UP or TOP, for correct indexing and orientation inside a signal housing. Modules conforming to this specification may have the following statement: "Manufactured in Conformance with the Interim Purchase Specification of the ITE for LED vehicle Pedestrian signal Modules" on an attached label.

(D) Manufacturer's Warranty. The standard contract warranty shall apply with time extensions applied to materials. The contractor shall provide a written manufacturer’s guarantee to the Agency (City, County or etc.) who provides electrical service and maintenance of the intersection. Warranty shall provide the following stipulations:

- Isolated Failures Warranty Period not less than 7 Years
- Design Failure Warranty Period not less than 5 Years

Warranty for isolated lens failure shall include replacement LED module at no cost for materials and shipping for a period of 7 years from the date the intersection is considered substantially complete by the engineer. An LED module shall be considered failed when the luminosity drops below the ITE requirements listed above.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

LED COUNTDOWN PEDESTRIAN SIGNAL HEAD

A product “Design Failure” is considered to have occurred if, within a period of 5 years or less, a total of ten percent (10%) of the LED modules supplied on a particular Job are considered failed as described above. The supplier shall then “recall” the entire shipment at no cost to the agency maintaining the equipment. This shall include labor and equipment necessary to replace the units.

3. CONSTRUCTION REQUIREMENTS. Construction shall be in accordance with the standard specifications. No distinction is made for span-wire installations, post mount, mast arm mount, or other mounting methods as described on the plan sheet(s).

4. METHOD OF MEASUREMENT.

A. Pedestrian Signal Head, LED. Work completed and accepted and measured as provided above will be measured by unit.

B. Pedestrian Signal Head, LED Lens Retrofit (Ret). Work completed and accepted and measured as provided above will be measured by unit.

5. BASIS OF PAYMENT.

A. LED Pedestrian Signal Head. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for PEDESTRIAN SIGNAL HEAD LED of the type, display and size specified, which price shall be full compensation for furnishing and installing all materials and signs; and for all labor, equipment, tools, and incidentals necessary to complete the work.

B. LED Pedestrian Signal Lens Ret. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for PEDESTRIAN SIGNAL LED LENS RET of the type, number of sections, color and display specified, which price shall be full compensation for removing existing unnecessary hardware and modifying existing housing; and for furnishing and installing all materials; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countdown Pedestrian Signal Head, LED</td>
<td>Each</td>
</tr>
</tbody>
</table>
DESCRIPTION. This item consists of furnishing and installing electrical conductors as noted on the plans. This shall include conductors from the luminaire service point to the luminaire disconnect point and from the luminaire disconnect point to luminaires mounted on the traffic signal poles. Circuit breakers and weatherproof breaker boxes are considered subsidiary to "Electrical Conductors for Luminaires" and shall be provided and installed by the Contractor at the luminaire disconnect point.

MATERIALS. The electrical conductors shall consist of two conductor cables (#12 A.W.G.). Electrical conductors shall be stranded or solid copper UF rated 600-volt, suitable for underground duct installation in wet or dry locations. Electrical conductors shall comply to ASTM Specification B3, B-8 or B-787. The insulation shall be a color coded premium grade flame retardant PVC (polyvinyl chloride). The jacket shall be polyamide nylon. Circuit breakers shall be rated at 20 amps.

CONSTRUCTION REQUIREMENTS. The Contractor shall furnish and install a luminaire disconnect (20-amp circuit breaker assembly and weatherproof box) at the location designated on the plans that meets the requirements of the local utility company. The Contractor shall connect the circuit breaker assembly to the line side of the service point supplying the controller. Conductors for luminaires shall run directly from load side of luminaire disconnect to luminaires mounted on signal poles. Disconnect or trip of luminaire disconnect shall not effect power to controller. Luminaire disconnect shall be clearly labeled as "Street Light" circuit.

Splices are allowed at pole bases or as approved by the Engineer. Splicing methods considered acceptable are: Soldered, compression connectors of proper size employing cyclic crimping devices, terminal strips, or other method approved by the Engineer. Splices on terminal strips shall utilize proper spade lugs. All splices shall be waterproof. When taping is required, the wire shall be covered with six (6) layers of plastic electrical tape and sealed with "Scotch-Coat" or other similar electrical sealing material. Where wire nuts are used, soldering, taping and sealing is still required. Electrical insulating putty may be used to round off sharp corners of wire or connectors before applying tape. Slack cable (3 ft. min.) shall remain at each splice location or at end of luminaire arm when luminaire is not to be installed by contractor. Final connection of power from the local utility to the service point will be made by others.

METHOD OF MEASUREMENT. Electrical Conductors for Luminaires will be measured by the linear foot. Multiple conductors shall be measured together, not measured singularly.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ELECTRICAL CONDUCTORS FOR LUMINAIRES

**Basis of Payment.** Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot for Electrical Conductors for Luminaires of the type and size called for on the plans, which price shall be full compensation for furnishing materials, splicing and connections and for all tools, equipment, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Conductors for Luminaires</td>
<td>Linear Foot</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ELECTRICAL CONDUCTORS-IN-CONDUIT

DESCRIPTION. This item consists of furnishing and installing electrical conductors from point to point as indicated on the plan sheets.

MATERIALS. The electrical conductors shall consist of cables of the gauge and number of conductors specified on the plan sheets, and shall be USE rated (single conductor) or UF rated (two conductor) with cross-link polyethylene (XLP) insulation, 600-volt rating, and suitable for underground duct installation in wet or dry locations. Electrical conductors shall be UL Listed, and shall comply with ASTM B3, B8, B787, and/or UL Standard 854. Multiple single conductor cables shall not be twisted. Electrical conductors shall be solid or stranded copper unless otherwise approved by the Engineer.

Where specified "With Ground" (WG), included shall be a copper safety ground of either bare copper or green insulated; of not less than two sizes less than the load carrying conductors, whichever is greater.

Where specified "Equipment Ground Conductor" (E.G.C.), conductor shall be a copper safety ground of either bare copper or green insulated of the size and quantity shown.

CONSTRUCTION REQUIREMENTS. Splices are allowed at pole bases or as approved by the Engineer. Unless waterproof quick disconnects are used, splicing methods considered acceptable are: Soldered, compression connectors of proper size employing cyclic crimping devices, terminal strips, or other method approved by the Engineer. Splices on terminal strips shall utilize proper spade lugs. All splices shall be waterproof. When taping is required, the wire shall be covered with six (6) layers of plastic electrical tape and sealed with "Scotch-Coat" or other similar electrical sealing material. Where wire nuts are used, soldering, taping and sealing is still required. Electrical insulating putty may be used to round off sharp corners of wire or connectors before applying tape. Slack cable (3 ft. min.) shall remain at each splice location.

METHOD OF MEASUREMENT. Electrical Conductors-In-Conduit shall be measured by the linear foot. Multiple conductors shall be measured together, not measured singularly.

BASIS OF PAYMENT. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot for Electrical Conductors-In-Conduit of the type and size called for on the plans, which price shall be full compensation for furnishing materials, splicing, and connections and for all tools, equipment, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Conductors-In-Conduit ( <em>c</em>/ _ A.W.G.,_)</td>
<td>Linear Foot</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

TIKT TOWER

1. **Description:**
   This work consists of furnishing all materials, construction and erecting an antenna, radios and cameras support tilt tower pole in accordance with the plans and specifications or as directed by the Engineer.

2. **Materials:**
   Pole shall be the Tilt Tower type. Tilt Tower shall include the pole, tilt arm attached to the pole, base, helical screw foundation, brackets, connections, wires and all materials, equipment, tools, labor, and incidentals necessary to complete the work. Pole shall be hot-dipped galvanized steel. Pole may be either round tapered, multisided tapered, or as required by the Plans. Pole and hardware, unless superseded by this special provision or the detail sheet(s), shall meet the minimum requirements under the *Standard Specifications for Highway Construction, Edition of 2014*.

   Section 714 “Traffic Signal Mast Arm and Pole with Foundation” of the Standard Specifications shall apply to all units of steel design as well as hardware and foundation requirements for units of the other material.

   Section 724 "Overhead, Bridge Mount, and Cantilever Sign Structure" of the Standard Specifications shall apply to poles and mast arms for units of aluminum design.

   Aluminum alloy surfaces contacting concrete foundations and steel surfaces shall be coated with or bedded in, an aluminum caulking compound such as alumilastic or other suitable material approved by the Engineer.

3. **Construction**
   **A. Structure Design**
   Structure design shall be certified by a registered professional engineer representing the manufacturer. The design shall be in accordance with AASHTO standard specifications for structural supports for highway signs, luminaires and traffic signals, 4th edition (2001) with 2003 and 2006 interims. The Tilt Tower shall be designed to meet the load cases of Section 3, for wind loading. Arkansas has a “base” wind speed of 90 mph. Include Vortex shedding and natural wind gusts.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

TILT TOWER

The Tilt Tower shall be mounted as indicated on the plans. All poles and arms of tilt tower within continuous systems shall be of similar shape, dimension, material, and color. Tilting member of pole must pivot from the middle of the structure as shown in the plans. Cost of powder coating shall not be paid for directly, and will be considered incidental to this Special provision. Tilt tower shall be hot-dipped galvanized steel.

Tilt Tower poles, hand holes, cabinet, barrier wall junction box access panels and/or any attachments shall be on the same side where possible, and shall be on the opposite side of any traffic traveled lanes. The contractor shall install the tilt tower type pole at the locations specified in the plans and allow enough room for the pole, arm and all mounted materials to have easy access to be serviced. The contractor shall ensure the pole, tilt tower and all attachments are installed in a fit area to ensure rotation of the tilt arm and a safe operation of the tilt tower while being serviced. The contractor shall contact the ITS Management Section of the Department to obtain clarification on which side the pole, arm and other tools and equipment shall be installed/facing and install each pole with the instruction form the Department’s ITS Management section personnel.

The location of towers shown in the plans are approximate, and are the locations at the time of design. The final location may be subject to change due to construction environment. The contractor shall verify the final location with the Job Engineer, and any changes shall be approved by the Job Engineer.

B. Other Requirements

1. The tilt tower shall be 40ft high and shall support 35 pounds at the top of the pole.
2. The tilt tower shall be the vertical rotating type and shall have azimuth adjustment device to rotate the tower in any direction.
3. The tilt tower shall utilize an adjustable solar panel mount to mount at least 2 solar panels. Refer to “Photovoltaic Solar System” Special Provision for the size.
4. The tilt tower shall be designed to be counterweighted so no winch or lowering assist apparatus is needed.

5. The tilt tower design, feedlines shall be installed within the tower to provide protection from tampering and to provide for a neat and clean install.

6. The tilt tower shall have reinforced auger foundation used in conjunction with the tilt tower.

7. The Design shall meet TIA 222 Rev. G

8. All steel components shall be hot dipped galvanized to ASTM A123 Specifications

9. Bolts shall be ASTM A325 with A563 grade DH or better nuts with F436 flat washers

10. All connections shall be designed to hold the design load of the connection members.

11. All welds shall be per AWS D1.1

12. Tilt tower shall fold from a pivot point not less than 1/3 of the pole height.

13. The Tilt tower shall be Western Towers RTT40 or approved equal.

4. Method of Measurement

Work completed and accepted under this item shall be measured by the unit. Tilt tower pole shall refer to the requirement to furnish a complete tilt tower system meeting the requirements of this special provision and all associated hardware and wiring. Height (Ft.) shall refer to the nominal height of the tilt tower pole including base. Refer to Pole Standard drawings for more details and measurements.

5. Basis of Payment

Equipment and labor supplied under this item shall be measured separately by the unit; which price shall be full compensation for furnishing and installing the tilt tower pole, base, foundation, brackets, connections, removal of surplus material; for furnishing and placing reinforcing steel and concrete and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.
### ARKANSAS DEPARTMENT OF TRANSPORTATION

### SPECIAL PROVISION

### JOB NO. CA0604

#### TILT TOWER

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Tower (40’)</td>
<td>Each</td>
</tr>
<tr>
<td>Tilt Tower (50’)</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)

1. DESCRIPTION. This work shall consist of furnishing and installing LED luminaire assemblies on traffic signal poles, including the accessories, in accordance with these specifications and at the locations shown on the plans or as directed.

2. MATERIALS AND CONSTRUCTION REQUIREMENTS.

A. Luminaire. Each luminaire assembly shall consist of a “Cobra Head”, power door style; Light Emitting Diode (LED) light source capable of outputting at least 12,000 lumens, and optics to produce an IESNA Type-III light distribution with a BUG rating of U0. The rated Correlated Color Temperature (CCT) shall be 4000° K +/- 200°K, and the Color Rendering Index (CRI) shall be no less than 60. As a minimum, 40% of Light Flux values shall be maintained on the downward street side; with greater than 0.002 foot-candles per 1000 lamp lumens at a point of “1 x 4” mounting heights on the downward street side. Mesopic multipliers (i.e., effective luminance factors) shall not be used. All values shall assume photopic visual adaptation. Luminaires with a Light Loss Factor using the L70 Method shall have a minimum rating of 50,000 hours, and a minimum 5 year warranty. The warranty shall provide for the repair or replacement of defective electrical parts (including light source and power supplies/drivers) for a minimum of five (5) years from the date of purchase. Luminaire shall be able to operate normally in temperatures from -40° C to +40° C. LED light source(s) and driver(s) shall be RoHS compliant.

The luminaires shall be all aluminum die cast hinged construction. Each luminaire assembly shall have a photocell and receptacle in the top of the luminaire housing and shall meet the requirements of the local utility company. The luminaires shall be rated IP-66 or better, and shall employ the use of borosilicate glass lenses. All luminaire internal components shall be assembled and pre-wired using modular electrical connections, and shall be designed for ease of component replacement and end-of-life disassembly.

All luminaires shall contain built-in drivers with power door assembly, and be of an approved streamlined design. Drivers shall be wired for line voltage as indicated on the plan sheets (plus or minus 10% line voltage, variation), 60-cycle, single phase, multiple circuit operation, with high power factor (90% or higher). The driver shall be suitable for the proper operation of the LED array inclusive to the luminaire assembly, with a minimum open circuit voltage as specified on the plan sheets, and shall be an easily replaceable part of the luminaire assembly. The luminaire shall be listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Testing Laboratory (NRTL). The luminaire shall have lightning suppression equipment capable of meeting the performance requirements for electrical immunity as specified in ANSI C136.2, using a combination wave test level of at least 10kV/5kA.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)

Luminaire assemblies (with accessories) shall be supplied in one style or model number from one manufacturer only. The contractor shall submit manufacturer’s brochures with illustrations and data in addition to LM-79, LM-80 and TM-21 reports to the Arkansas Department of Transportation for approval of luminaires, accessories and installation details. All submitted luminaires shall be listed on the Department of Energy’s LED Lighting Facts website, and all supporting calculations and test data from the LM-79, LM-80 and TM-21 reports must be in accordance with LED Lighting Facts guidance.

B. **Photo Cell.** Each luminaire assembly shall have a solid state photocell and receptacle in the top of the luminaire housing. Photocells shall have a locking-type photoelectric control with a rating of 5,000 operations minimum (13 years) on loads of 1800VA. The photocell shall operate at the same voltage rating as the luminaire driver.

3. **METHOD OF MEASUREMENT.** Completed and accepted LED Luminaire Assembly will be measured by the unit.

4. **BASIS OF PAYMENT.** Work completed and accepted under this item and measured as provided above shall be paid for at the contract unit price bid for each LED Luminaire Assembly, which price shall be full compensation for furnishing and installing the luminaires, lamps of the type described herein, driver, photocell, and all materials, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED Luminaire Assembly</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

LED TRAFFIC SIGNAL HEAD

1. DESCRIPTION. This item shall consist of furnishing and installing 300 mm (12") diameter Traffic Signal Heads and components based on Light Emitting Diode (LED) technology according to these specifications as well as Section 706 Traffic Signal Head of the Standard Specifications for Highway Construction, Edition of 2014, to approval of the engineer. Portions of the standard specifications will be superseded by these special provisions.

2. MATERIALS. The LED modules shall be suitable for span wire and mast arm mounted signals. Units must meet the following specifications to be accepted.

   (A) Physical and Mechanical. LED traffic signal modules designed shall not require special tools for installation. Retrofit replacement LED signal modules shall fit into existing traffic signal housings built to the VTCSH Standard without modification to the housing. Installation of a retrofit replacement LED signal module into an existing signal housing shall only require the removal of the existing optical unit components, i.e., lens, lamp, and gaskets; shall be weather tight and fit securely in the housing; and shall connect directly to existing electrical wiring utilizing spade connectors. It shall not be necessary to remove reflector or lamp module. Reflector and lamp module is not required where new housings are provided.

   (B) Optical Requirements. The RED and GREEN modules shall be measured per ITE specifications, and are required to meet luminous values that are a minimum of 115 percent greater than the required minimum values in the specifications at the time of production. The YELLOW modules shall be tested for luminous output at 25°C, allowing the modules to achieve thermal equilibrium for 60 minutes, while the modules are energized at nominal operating voltage, at a 8.3% (or 1/12) duty cycle or 5 sec on/55 sec off. The yellow modules shall meet all other ITE specifications.

   (C) Optical Unit. LED signal modules shall meet the following requirements:

      Optical unit replacement - The LED module shall be constructed to allow the replacement of the outer lens and/or the light engine when needed.

      Lens Surface - The external lens shall be smooth on the outside to prevent excessive dirt/dust buildup.

      Tinting - The RED, YELLOW and optionally on GREEN lens shall be tinted or shall use transparent film or materials with similar characteristics.

      Chromaticity - The measured coordinates of LED signal modules shall conform to the chromaticity requirements of Section 8.04 and Figure 1 of the VTCSH standard.

      Environment - The LED signal module shall be rated for use in the ambient operating temperature range, measured at the exposed rear of the module, of -40°C (-40°F) to +74°C (+165°F). The LED signal module shall be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991, sections 4.7.2.1 and
ARKANSAS DEPARTMENT OF TRANSPORTATION

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JOB NO. CA0604

LED TRAFFIC SIGNAL HEAD

4.7.3.2, for Type 4 enclosures to protect all internal LED, electronic, and electrical components. The LED signal module lens shall be UV Stabilized.

Pre assembly - The LED signal module shall be a single, self-contained device, not requiring on-site assembly for installation into an existing traffic signal housing. The power supply for the LED signal module may be either integral or packaged as a separate module. The power supply may be designed to fit and mount inside the traffic signal housing adjacent to the LED signal module. The assembly and manufacturing process for the LED signal assembly shall be designed to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

LED Drive Circuitry (parallel) - The individual LED light sources shall be wired so that a catastrophic failure of one LED light source will result in the loss of only that one LED light source, and the loss of no more than 1% of the total LED's within the LED signal module.

Material Composition - Materials used for the lens and signal module construction shall conform to ASTM specification for the materials where applicable. Enclosures containing either the power supply or electronic components of the signal modules shall be made of UL94VO flame retardant materials. The lens of the signal module is excluded from this requirement.

Identification Markings - Each individual LED signal module shall be identified for warranty purposes. Each LED signal module shall be identified on the backside with the manufacturer's name and serial number. The following operating characteristics shall be identified: nominal operating voltage, power consumption, and Volt-Ampere. Modules shall have a prominent and permanent vertical indexing indicator, i.e. UP ARROW or the word UP or TOP, for correct indexing and orientation inside a signal housing. Modules conforming to this specification may have the following statement: "Manufactured in Conformance with the Interim Purchase Specification of the ITE for LED vehicle Traffic Signal Modules" on an attached label.

The first sentence of Subsection 706.02, Materials. (d) is deleted and the following substituted therefore:

The Contractor shall furnish and install the proper signs [either Left Turn Signal (MUTCD R10-10) or Left Turn Yield on Flashing Yellow Arrow (MUTCD Special) or Left Turn Yield on Green (symbolic green ball (MUTCD R10-12))] adjacent to signal heads controlling an exclusive left turn lane.

(E) Manufacturer's Warranty. The standard contract warranty shall apply with time extensions applied to materials. The contractor shall provide a written manufacturer's guarantee to the Agency (City, County or etc.) who provides electrical service and maintenance of the intersection. Warranty shall provide the following stipulations:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

LED TRAFFIC SIGNAL HEAD

- Isolated Failures Warranty Period not less than 7 Years
- Design Failure Warranty Period not less than 5 Years

Warranty for isolated lens failure shall include replacement LED module at no cost for materials and shipping for a period of 7 years from the date the intersection is considered substantially complete by the engineer. An LED module shall be considered failed when the luminosity drops below the ITE requirements listed above.

A product “Design Failure” is considered to have occurred if, within a period of 5 years or less, a total of ten percent (10%) of the LED modules supplied on a particular Job are considered failed as described above. The supplier shall then “recall” the entire shipment at no cost to the agency maintaining the equipment. This shall include labor and equipment necessary to replace the units.

3. CONSTRUCTION REQUIREMENTS. Construction shall be in accordance with the standard specifications. No distinction is made for span-wire installations, post mount, mast arm mount, or other mounting methods as described on the plan sheet(s).

Whether complete head assembly is replaced or existing head is retrofitted with new lenses, contractor shall be responsible for aligning head properly with approach lanes. This does not include relocating head and bracket, but adjusting the alignment of the head to achieve maximum visibility to motorists.

4. METHOD OF MEASUREMENT. Units are bid as “3 Section”, “4 Section” or “5 Section”. A 3 Section unit consists of one each: Red Ball, Yellow Ball, and Green Ball. A 4 Section unit consists of one each: Red Ball, Yellow Ball, Green Ball, and Green Arrow or Red Arrow, Yellow Ball, Yellow Arrow, and Green Arrow. A 5 Section unit consists of one each: Red Ball, Yellow Ball, Green Ball, Yellow Arrow, and Green Arrow. No distinction shall be made in the unit based on the orientation of the arrow indications.

A. Traffic Signal Head, LED. Work completed and accepted and measured as provided above will be measured by unit.

B. Traffic Signal Head, LED Lens, Retrofit (Ret). Work completed and accepted and measured as provided above will be measured by unit.

5. BASIS OF PAYMENT.

A. LED Traffic Signal Head. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for Traffic Signal Head, LED of the type, display and size specified, which price shall be full compensation for furnishing and installing all materials and signs; and for all labor, equipment, tools, and incidentals necessary to complete the work.

B. LED Traffic Signal Lens Ret. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for Traffic Signal
ARKANSAS DEPARTMENT OF TRANSPORTATION

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LED TRAFFIC SIGNAL HEAD

Head, LED Lens, Retrofit of the type, number of sections, color and display specified, which price shall be full compensation for removing existing unnecessary hardware and modifying existing housing; and for furnishing and installing all materials; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Head, LED, (___Section, 1 Way)</td>
<td>Each</td>
</tr>
<tr>
<td>Traffic Signal Head, LED Lens, Retrofit (___Section, 1 Way)</td>
<td>Each</td>
</tr>
</tbody>
</table>
DESCRIPTION. Under this item, the contractor shall remove traffic signal heads, traffic signal poles, traffic signal pole foundations, span wire assemblies, traffic controllers and all other existing signal equipment at locations shown on the plans or as ordered by the Engineer.

MATERIALS. The contractor shall provide all equipment and tools necessary to remove the signal equipment at locations shown on the plans or as designated by the Engineer.

CONSTRUCTION REQUIREMENTS. The contractor shall maintain the existing signal operations as much as possible throughout construction until the completion of the contract. Control of the intersection shall be by police officers, flagmen, or as determined by the Engineer at anytime that the signals are not in operation.

The contractor shall remove the traffic signal pole foundations and all appurtenances such as reinforcing steel, conduit, anchor bolts and cable to a depth of 18 inches below grade. The concrete foundations shall be broken up and the material disposed of outside of the limits of the project by the contractor. The contractor shall fill with earth all holes where concrete foundations or wooden span wire poles have been removed under this item. The earth in the hole shall be thoroughly compacted until it is as firm and unyielding as the surrounding material. Concrete or asphalt surfaces shall be restored to existing conditions.

All equipment shall remain the property of the City or County and the contractor shall notify the City or County 24 hours in advance of the removal. All removed equipment shall be stored by the contractor at the construction site. The contractor shall provide a secure, weather-tight enclosure to store all electric components until they can be removed from the construction site.

METHOD OF MEASUREMENT. Removal of traffic signal equipment will be measured by the lump sum.

BASIS OF PAYMENT. Work completed and accepted and measured as provided above will be paid for at the contract lump sum price bid for Removal of Traffic Signal Equipment, which price shall be full compensation for furnishing all materials, equipment, tools, labor, and incidentals necessary to complete the work as described herein.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of Traffic Signal Equipment</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>
DESCRIPTION. This item consists of furnishing and installing a distribution panel, circuit breaker, lightning arrester, weatherhead, clamps, wiring, ground rod, and miscellaneous fittings at locations designated on the plans and in accordance with the latest version of the National Electrical Code.

Lightning arrester shall be SPD Type 2 (load side) per NEC and UL Code 1449.

All construction and wiring shall be in compliance with local electrical codes. The Contractor shall perform all necessary liaisons with local power companies in order to ascertain such specific requirements as the power company may apply to each location.

MATERIALS AND CONSTRUCTION REQUIREMENTS. Height of the service riser weatherhead shall be 20 feet or greater depending on street crossings or other obstructions, unless otherwise approved by the Engineer.

The required weatherhead, conduit nipples, couplings, clamps and other fittings exposed to the weather shall be hot dipped galvanized steel and shall be attached to the pole in such a manner as to facilitate the final steel conduit connecting weatherhead. Service disconnect, distribution cabinet and tie to underground circuits is paid for by Service Point Assembly. Galvanized steel conduit for riser shall be paid as a separate item.

The Contractor shall furnish and install service feeder wire from the distribution cabinet to the main breaker and from the main breaker past the weatherhead. Tie-in and splicing of the service feeder wire to the secondaries supplied by the local utility will be performed by others and shall not be considered a part of this contract. Grounding shall be as shown on the Standard Drawing SD-9 (Service Point).

Mounted at the service location shall be NEMA 3R enclosure(s), circuit breaker, distribution panel and main breaker of a design and model number suitable to the local power company and as approved by the Engineer. The circuit breaker shall be magnetic trip only and sized in accordance with the plans. If required, a meter base provided by the utility company shall be installed above the distribution panel. All enclosures and circuit breakers shall be rated for 240 V.A.C. or greater, unless otherwise designated on the plan sheets. A 30 amp breaker shall be provided.

Where lighting is included in the signal installation for intersection lighting, a 20 amp breaker shall be provided.

The Contractor shall submit to the Engineer two (2) printed copies of the applicable brochures containing the design criteria for the equipment which the Contractor proposes to install for approval. The specific items that are proposed for use shall be clearly marked in the applicable
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

SERVICE POINT ASSEMBLY
(TRAFFIC CONTROL DEVICES)

brochures. A list shall be attached to identify the item and contain the manufacturer, quantity, model, and identifying descriptions of each item. The items to be submitted: load centers and enclosures, lightning arrestor, and all circuit breakers.

**METHOD OF MEASUREMENT.** Completed and accepted Service Point Assembly will be measured by the unit.

**BASIS OF PAYMENT.** Work completed and accepted and measured as provided above will be paid for at the contract unit price bid each for Service Point Assembly for the number of circuits specified, which price shall be full compensation for furnishing and installing a treated wood pole, enclosure(s), circuit breaker(s), main breaker, distribution panel, steel conduit, conduit fittings, wiring and ground rod; for testing the service point assembly; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Point Assembly (___ Circuit(s))</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ENHANCED THERMOPLASTIC PAVEMENT MARKING

DESCRIPTION. This item shall consist of furnishing and placing enhanced thermoplastic pavement markings, of the color and type specified, all according to these specifications and in conformity with the dimensions and at the locations shown on the plans or as directed.

The markings are to be placed under existing traffic conditions. The work shall comply with the MUTCD except as modified by these specifications.

MATERIALS. The material used shall be a product especially compounded for traffic markings. Each container shall be clearly and adequately marked to indicate the color, weight, batch or lot number, and type of material.

The Contractor shall furnish a certification from the manufacturer showing that the material requirements of this specification have been met.

The material shall meet the requirements of AASHTO M 249 with the following additions:

Yellow materials color specifications shall be as follows:

<table>
<thead>
<tr>
<th>Color Specifications Limits - Daytime Initial Chromaticity Coordinates</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>y</td>
<td>x</td>
<td>y</td>
<td>x</td>
</tr>
<tr>
<td>0.499</td>
<td>0.466</td>
<td>0.545</td>
<td>0.455</td>
<td>0.518</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Luminance Factor, Y (%)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40.0</td>
<td>60.0</td>
</tr>
</tbody>
</table>

Initial daytime color determination will be made in accordance with AASHTO T 250. Values shall be evaluated on material without the drop-on beads.

<table>
<thead>
<tr>
<th>Color Specifications Limits - Daytime Retained Chromaticity Coordinates</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>y</td>
<td>x</td>
<td>y</td>
<td>x</td>
</tr>
<tr>
<td>0.560</td>
<td>0.440</td>
<td>0.490</td>
<td>0.510</td>
<td>0.420</td>
</tr>
</tbody>
</table>

Retained daytime color limits shall conform to the specifications for a minimum of ninety days for construction pavement markings and one year for all other markings. Retained readings will be determined on a beaded surface in accordance with the requirements of ASTM E 2366.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604
ENHANCED THERMOPLASTIC PAVEMENT MARKING

<table>
<thead>
<tr>
<th>Color Specifications Limits - Nighttime Initial with drop-on beads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromaticity Coordinates</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>x</td>
</tr>
<tr>
<td>0.575</td>
</tr>
</tbody>
</table>

Initial nighttime color limits will be determined in accordance with the requirements of ASTM E 2367 on a beaded surface.

The pigments used for the pavement marking material compound shall not contain any compounds that will exceed the values listed in the Environmental Protection Agency Code of Federal Regulations (CFR) 40, Section 261.24, Table 1.

Heat-fused, pre-formed thermoplastic pavement marking material shall meet the requirements of AASHTO M249 with the exception of the relevant differences due to the material being pre-formed.

The material shall not break down or deteriorate if held at the plastic temperature for a period of 4 hours nor by reason of 4 re-heatings to the plastic temperature. The temperature-viscosity characteristics of the thermoplastic material shall remain consistent and there shall be no obvious change in the color of the material.

The material shall not deteriorate by contact with sodium chloride, calcium chloride, or other chemical formations on the roadway or streets, or because of the oil contact on pavement material, or from oil droppings from traffic.

After application and proper drying time, material shall show neither appreciable deformation nor discoloration under local traffic conditions and in air or road temperatures ranging from 0°F (-18°C) to 160°F (71°C). The material shall not smear or spread under normal traffic conditions at temperatures below 160°F (71°C).

Under this specification, the term "drying time" shall be defined as the minimum elapsed time after application when the pavement marking shall have and retain the characteristics required in the preceding paragraphs. In addition, the drying time shall be established by the minimum elapsed time after application when traffic will leave no impression or imprint on the applied marking. The drying time shall not exceed a characteristic straight-line curve, the limits of which are 2 minutes at 50°F (10°C) and 15 minutes at 90°F (32°C), measured at a maximum relative humidity of 70%.

The pavement markings shall maintain its original dimension and placement. The exposed surface shall be free of tack. Cold ductility of the material shall be such as to permit normal movement with the road surface without chipping or cracking. The material shall not be slippery when wet and it shall not lift from the pavement in freezing weather.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ENHANCED THERMOPLASTIC PAVEMENT MARKING

The marking shall have a uniform cross section. The density and character of the material shall be uniform throughout its thickness and shall be completely reflectorized both internally and externally.

The glass beads used for the intermix and the drop-on application shall meet AASHTO M-247 for the gradation specified below, with the exception that the glass beads shall have a minimum 80% true spheres in all gradations.

Intermix Glass Beads. The required 30-40% glass bead intermix shall be comprised of 50% of AASHTO M 247 Type 1 and 50% of AASHTO M 247 Type 3 beads. The beads shall be uncoated.

Drop-On Beads. Drop-on beads shall be applied using a double drop system capable of applying the beads at the specified application rates. Drop-on beads shall consist of AASHTO M 247 60% Type 1 beads and 40% Type 4 beads. The beads shall be dual coated for moisture resistance and adhesion.

CONSTRUCTION REQUIREMENTS. The thermoplastic compound shall be screed or ribbon extruded to the pavement surface. Heat-fused, pre-formed pavement markings shall be fusible to asphalt or Portland cement concrete surfaces by means of the normal heat of a propane weed-burner type of torch or other heating device as recommended by the manufacturer.

The equipment used to apply the thermoplastic compound onto the pavement shall be suitably equipped for heating and controlling the flow of the material. The equipment shall be constructed to provide continuous mixing and agitation of the material. The conveying parts of the equipment, between the main material reservoir and applicator, shall be so constructed as to prevent accumulation and clogging. The equipment shall be constructed so that all mixing and conveying parts, up to and including the applicator, maintain the material at the plastic temperature. The thermoplastic material shall be dispensed at a temperature recommended by the manufacturer. The applicator shall include a cutoff device remotely controlled to provide clean, square stripe ends and to provide a method for applying skip lines.

The thermoplastic reservoir shall be insulated and equipped with an automatic thermostatic control to maintain the proper temperature of the material.

The thermoplastic machine shall comply with the requirements of the National Board of Fire Underwriters.

Beads applied to the surface of the completed stripe shall be applied by an automatic double drop bead dispenser attached to the pavement marking equipment in such a manner that the beads are immediately dispensed upon the completed line. The bead dispenser shall be equipped with an automatic cutoff control, synchronized with the cutoff of the pavement marking equipment. The Type 1 and Type 4 beads shall be automatically applied at a combined total minimum uniform rate of 8 to 10 pounds of glass beads to every 100 square feet. The Type 4
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ENHANCED THERMOPLASTIC PAVEMENT MARKING

beads shall be applied first, and shall be followed immediately by the Type 1 bead application. They shall be applied across the entire line width, ensuring uniform application and embedment of the beads to 50-60% of the bead diameter.

Thermoplastic markings shall not be applied to the pavement surface when the pavement surface temperature is less than 50°F or when the pavement surface shows evidence of moisture.

On new concrete pavements where no pavement markings exist or on existing concrete or asphalt pavements where the existing pavement markings are paint or thermoplastic and do not conflict with the proposed pavement markings, blasting with water or sand or a combination thereof will be required to remove any curing compound, oxidized paint or thermoplastic, or dirt to ensure a good bond. This blasting is considered surface preparation. On newly constructed asphalt pavements any sand, grit, or other surface contaminants must be removed using compressed air and/or sweeping. Water blasting may be necessary to remove surface contaminants which cannot be removed by the use of compressed air and/or sweeping. This work is considered surface preparation.

Conflicting pavement markings that exist shall be removed by blasting with water and/or sand or by grinding. This blasting or grinding is considered pavement marking removal.

The thickness of thermoplastic markings above the roadway surface shall be 90 mils. The thickness will be measured by a device supplied by the Contractor during the course of the project capable of measuring the thickness of the marking as installed on the pavement. The minimum thickness, as required above, will be measured in the center of the line when gauged by the equipment described above. The minimum thickness 1/2" from the edges shall not be less than 75% of the thickness required in the center. Maximum thickness of markings is 3/16".

On concrete pavements, paint pavement markings according to Section 718 shall be applied as a primer for the thermoplastic markings, except where thermoplastic markings are to be applied over existing thermoplastic markings. Paint applied to concrete pavement solely as a primer will not be measured or paid for separately, but full compensation therefor will be considered included in the contract unit prices bid for the various items of Enhanced Thermoplastic Pavement Markings. A primer other than paint may be used when recommended by the thermoplastic manufacturer.

A primer is not required for asphalt pavements, but paint pavement markings complying with Section 718 may be used by the Contractor as a primer at no cost to the Department.

When temperature limitations prohibit placement of thermoplastic markings within the 3 or 14 day limit specified in Section 604, the Contractor shall place painted markings according to Section 718. Painted markings required due to temperature limitations will be measured and paid for under Section 604. In this case, the Contractor shall maintain the painted markings at no additional cost to the Department until the thermoplastic markings, including primer if required, are installed.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

ENHANCED THERMOPLASTIC PAVEMENT MARKING

Spotting the pavement for centerline location on two-way roadways is required. It will be the responsibility of the Contractor to spot using a string line or chain so that spots are placed at intervals not exceeding 10'. The Department will establish the no passing zones if required. On one-way roadways spotting is required for the initial edge line or lane line placed. Edge lines and/or lane lines may be installed by referencing to center or lane lines. Edge lines shall not be broken for driveways. The trace of the thermoplastic line shall be uniform.

The finished lines shall have well defined edges, shall be uniform in thickness, and shall be straight and true. No stripe shall be less than the specified width. Any corrections of variations in width or alignment of the stripes shall not be made abruptly. Lines that cannot be corrected to meet these requirements shall be removed in accordance with Section 604 at the Contractor’s expense.

Line removal as specified on the plans shall be performed in such a manner that no conflicting pavement marking will be left in place. Removal of the pavement marking by a means that will gouge the surface will not be permitted.

The Contractor shall use only workers experienced in installing thermoplastic markings.

METHOD OF MEASUREMENT.

(a) Enhanced Thermoplastic Pavement Markings will be measured by the linear foot (meter) of line of the width specified actually placed.

(b) Sand or water blasting in surface preparation will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Enhanced Thermoplastic Pavement Marking.

(c) Removal of pavement markings will be measured and paid for under Section 604.

BASIS OF PAYMENT. (a) Enhanced Thermoplastic Pavement Markings. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot for Enhanced Thermoplastic Pavement Markings of the width specified, which price shall be full compensation for furnishing and installing markings; for surface preparation; and for all labor, equipment, tools, furnishing thickness gauge, and incidentals necessary to complete the work.
ARKANSAS DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION  
JOB NO. CA0604  
ENHANCED THERMOPLASTIC PAVEMENT MARKING  

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced Thermoplastic Pavement Marking</td>
<td></td>
</tr>
<tr>
<td>White (&quot;”)</td>
<td>Linear Foot</td>
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<tr>
<td>Enhanced Thermoplastic Pavement Marking</td>
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<tr>
<td>Yellow (&quot;&quot;)</td>
<td>Linear Foot</td>
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<td>Enhanced Thermoplastic Pavement Marking</td>
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<td>(Words)</td>
<td>Each</td>
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<tr>
<td>Enhanced Thermoplastic Pavement Marking</td>
<td></td>
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<tr>
<td>(Arrows)</td>
<td>Each</td>
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<tr>
<td>Enhanced Thermoplastic Pavement Marking</td>
<td></td>
</tr>
<tr>
<td>(Railroad Emblems)</td>
<td>Each</td>
</tr>
<tr>
<td>Enhanced Thermoplastic Pavement Marking</td>
<td></td>
</tr>
<tr>
<td>(Bike Emblems)</td>
<td>Each</td>
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</tbody>
</table>
Description. This item shall consist of furnishing, fabricating, and installing steel overhead, cantilever, tee mount, and bridge mounted sign structures, luminaire supports when specified, and concrete or drilled shaft foundations in accordance with this Special Provision and to the dimensions and details shown on the plans. Steel sign structures shall be installed at the locations shown on the plans or as directed by the Engineer.

Materials. Structural steel sign support members shall conform to the following specifications:

- Angles: ASTM A709, Gr. 36 (Fy = 36,000 psi)
- Plate: ASTM A709, Gr. 50 (Fy = 50,000 psi)
- W-Section: ASTM A709, Gr. 50 (Fy = 50,000 psi)
- Pipe: ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi)
  - ASTM A500, Gr. B (Fy = 42,000 psi),
  - ASTM A501, Gr. B (Fy = 50,000 psi)
  - All grades of pipe require Heat traceability back to the original melting mill.
- Z-Shapes: ASTM A709, Gr. 36 (Fy = 36,000 psi)
- Shim Plates: ASTM A1011, SS, Gr. 36, Type 2, or Gr. 40
- Bolts: ASTM F3125, Grade A325, Type I
- Locknuts: ASTM A563, Grade DH or AASHTO M 292, Grade 2H
- Washers: ASTM F436
- Nuts: ASTM A563, Grade DH or AASHTO M 292, Grade 2H

In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4. All elements in the carbon equivalency (CE) equation shall be quantified and reported in the heat analysis or the product analysis. The following equation shall be used for determining the carbon equivalency (CE):

\[ CE = \%C + \%Mn/6 + \%Cu/40 + \%Ni/20 + \%Cr/10 - \%Mo/50 - \%V/10 \]

No circumferential butt welds or helical lap splices will be allowed in any pipe sections.

All steel shall be galvanized, unless otherwise noted, in accordance with Subsection 807.19.

All main load carrying tension members greater than 1/2" in thickness shall conform to the requirements of the Longitudinal Charpy V-notch test specified for Zone I minimum service temperature.

Bolts, nuts and washers shall be furnished and galvanized in accordance with Subsection 807.06. Anchor bolts shall conform to AASHTO M 314, Gr. 55, with supplementary requirement
STEEL SIGN STRUCTURES

S1, galvanized in accordance with Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07.

Concrete for footings shall comply with Section 802 for Class S concrete. The Department will perform all acceptance sampling and testing at the frequencies shown for Contractor acceptance testing in Subsection 802.06. Reinforcing steel shall comply with Section 804 for Grade 60.

**Commercial Alternates.** Subject to the approval of the Engineer and in conformance with the requirements specified herein, the Contractor may supply steel sign support structures as manufactured by a commercial sign structure manufacturer in place of the sign structures detailed in the plans.

If the Contractor elects to use a commercial product, a complete set of design calculations by a Licensed Professional Engineer, a certification by the Professional Engineer that the design conforms to the requirements specified herein and as shown on the plans, and general details or pictures of the proposed type of structure shall be submitted to the Engineer for review and acceptance prior to submitting shop details.

In general, the commercial product shall be a steel truss type structure that will have an appearance similar to the design shown on the plans including the use of a quadri-chord horizontal truss. Welded splices of the chords will not be allowed. Multi-column end supports consisting of round pipes shall be used and the individual members of the truss may be round pipes, angles, or other accepted structural shapes. The column to base plate connection shall use full-penetration groove welds or a socket-type joint with two fillet welds.

Sign supporting structures shall be designed in accordance with the design specifications used for the plan details. Equivalent design parameters specified in the plans for sign area and weights and maximum column heights shall be used for the design of the commercial sign structure. Unless otherwise specified in the plans, all structures shall be designed for Fatigue Category I and fatigue design for galloping loads may be excluded.

Materials, construction methods, and inspection shall comply with this Special Provision. If the fabricator elects to use materials of a different strength than that shown in this Special Provision, this information shall be included in the request for approval of the commercial product.

**Shop Drawings.** Shop drawings shall be submitted to the Engineer for review and approval prior to commencement of any fabrication. The Engineer’s secured approval does not eliminate the Contractor’s ultimate responsibility for the accuracy of the shop drawings and meeting the requirements of the plans and specifications.

**Fabrication Requirements.** Structure bracing members shall be cut and trimmed for proper fit and shall be bolted or welded in correct position to chord or post members to form the specified structural section. Each assembly shall be checked for alignment, correct shape, and sound welds at the fabricating plant prior to shipment. The fabricator shall certify that each complete structure shall be free of misfits or structural deficiencies prior to shipment.
STEEL SIGN STRUCTURES

Sign structures shall be fabricated in accordance with this Special Provision and the applicable provisions of Section 807. Welding shall be in accordance with the AWS D1.1 Structural Welding Code - Steel.

Visual inspection of all welds shall be made and shall include an examination of certificates of prequalification of the welders who are performing the work and an inspection of welding equipment and procedure. In addition to visual inspection, all fillet welds of critical members shall be tested according to the AWS D1.1 Structural Welding Code - Steel, using the magnetic particle method. Critical welds shall include all the connecting welds between the sign columns and base plates and between the sign columns and the top and bottom truss supports. All Complete Joint Penetration (CJP) Groove welds shall be tested according to the AWS D1.1 Structural Welding Code - Steel. An inspection report submitted by the inspection agency or a qualified representative, both approved by the Engineer, including a list of any defective welds that will require repairing, and certificates of prequalification of welding operators, shall be submitted to the Engineer. Further weld testing may be required as directed by the Engineer and will be at the Department’s expense, except that the Contractor shall make welded members accessible for inspection at no cost to the State. Any welds found to be defective shall be repaired only by re-welding.

The Contractor shall certify in writing that the welding and fabrication of the structures are in accordance with the governing specifications.

Construction Requirements. Excavation, backfill, compaction, and disposal of surplus materials shall be performed according to Section 801. Compaction shall be accomplished to the extent necessary to prevent future settlement of the backfill. Disturbed surfaces shall be returned to the original condition.

The applicable provisions of Sections 802, 804 and 807 shall govern the construction and installation of concrete, reinforcing steel and structural steel, respectively.

Anchor bolts shall be pretensioned. Exposed anchor bolt threads shall be cleaned and lubricated prior to installation of leveling nuts. Threads and bearing surfaces of nuts shall be cleaned and lubricated immediately prior to assembly. Leveling nuts shall be initially installed at the same elevation. Leveling nuts/washers shall be in firm contact with the base plate prior to snug tightening of the top nuts. Top nuts/washers shall be in firm contact with base plate when snug tight. Beveled washers may be required to provide firm contact. After top nuts are snug tight, the lower nuts shall be tightened to a snug tight condition to ensure full contact is achieved. After all nuts have been brought to a snug tight condition, bolts shall be tensioned using the turn-of-nut method. For the turn-of-nut method, nuts shall be incrementally turned using a star pattern until achieving the required rotation specified in Table 1-1, a minimum of 2 tightening cycles (passes) will be required.
STEEL SIGN STRUCTURES

Table 1-1 Nut Rotation for Turn-of-Nut Pretensioning

<table>
<thead>
<tr>
<th>Anchor Bolt Diameter</th>
<th>Nut Rotation(^{a,b})</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 1-1/2 inch</td>
<td>1/3 turn</td>
</tr>
<tr>
<td>&gt; 1-1/2 inch</td>
<td>1/6 turn</td>
</tr>
</tbody>
</table>

\(^{a}\) Nut rotation is relative to the anchor bolt. The tolerance is plus 20 degrees, minus 0 degrees

\(^{b}\) A beveled washer shall be used if the nut is not in firm contact with the baseplate or the outer face of the baseplate is sloped more than 1:40.

All truss field sections shall be shop assembled unless otherwise noted in the plans.

Field welding will not be permitted except upon approval in writing by the Engineer.

All sign supports shall provide a minimum vertical and horizontal clearance as shown on the plans. To ensure proper clearances, dimensions of the structure that affect clearances shall be verified by the Contractor by field measurements before fabrication begins.

Sign supports shall be erected so that the sign face is plumb and at right angles to the road unless otherwise directed by the Engineer.

Subsequent to erection, any damaged galvanized coating shall be field repaired in accordance with Subsection 807.88.

Method of Measurement. Steel Overhead Sign Structure, Steel Cantilever Sign Structure, Steel Tee Mount Sign Structure, and Steel Bridge Mounted Sign Structure will be measured by the unit, including foundations, complete in place. One unit consists of the structure and all Z-bars, brackets, bolts, washers, nuts, and other hardware necessary to complete the installation and mount the sign(s). The fabrication and installation of the signs will be paid for under Section 725 or 726.

Basis of Payment. Steel Overhead Sign Structure, Steel Cantilever Sign Structure, Steel Tee Mount Sign Structure, and Steel Bridge Mounted Sign Structure completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for Steel Overhead Sign Structure, Steel Cantilever Sign Structure, Steel Tee Mount Sign Structure, and Steel Bridge Mounted Sign Structure which price shall be full compensation for furnishing, fabricating, and installing the structure including sign framing, supporting structures, and concrete or drilled shaft foundations; for excavation, backfill, compaction, removal and disposal of surplus materials, and replacement of existing surfaces; for all weld testing; and for all materials, labor, tools, equipment, and incidentals necessary to complete the work.
## STEEL SIGN STRUCTURES

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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<tbody>
<tr>
<td>Steel Overhead Sign Structure (__)</td>
<td>Each</td>
</tr>
<tr>
<td>Steel Cantilever Sign Structure (__)</td>
<td>Each</td>
</tr>
<tr>
<td>Steel Tee Mount Sign Structure (__)</td>
<td>Each</td>
</tr>
<tr>
<td>Steel Bridge Mounted Sign Structure (__)</td>
<td>Each</td>
</tr>
</tbody>
</table>
A. General Conditions

1. Description: This item shall consist of furnishing and installing at locations shown upon the plans or as directed by the Engineer, overhead Light Emitting Diode Dynamic Message Signs (LED DMS) assembly and overhead Light Emitting Diode Dedicated Dynamic Message signs (LED DDMS) assembly in accordance with these special provisions and the Standard Specifications for Highway Construction, Arkansas State Highway and Transportation Department Edition of 2014.

2. Overhead DMS Assembly Current Model: The units furnished under this specification shall be a Daktronics Vanguard VF-2420-96x304-20-RGB and VF-2420-96x192-20-RGB Dynamic Message Signs at locations as shown on the plans or as directed by the Engineer. It shall be of quality workmanship and material. Machines manufactured for foreign markets will not be accepted. All equipment offered under this specification shall be new. Used, reconditioned, shopworn, demonstrator, prototype or discontinued models are not acceptable.

3. Overhead DDMS Assembly Current Model: The units furnished under this specification shall be a Daktronics Vanguard VM-1020-24x64-20-RGB, VM-1020-24x128-20-RGB, and VM-1020-24x160-20-RGB Dedicated Dynamic Message Signs at locations as shown on the plans or as directed by the Engineer. It shall be of quality workmanship and material. Machines manufactured for foreign markets will not be accepted. All equipment offered under this specification shall be new. Used, reconditioned, shopworn, demonstrator, prototype or discontinued models are not acceptable.

4. Delivery Requirements: It is the responsibility of the successful bidder to guarantee delivery of the Overhead LED Dynamic Message Sign Assembly as specified within the quoted time. The Arkansas Department of Transportation will not accept incomplete or late deliveries.

5. Manufacturer Requirements: The manufacturer shall have a minimum of 5 years of experience with the design, development, manufacturing, installation, testing, operation and maintenance of Dynamic Message Signs (DMS) and DDMS for the transportation market. The manufacturer shall regularly and currently produce DMS and DDMS. Experiences with manufacturing other types of electronic sign products will not satisfy the requirements of this DMS specification such as:
   - Indoor signs of any size or type
   - Portable or mobile signs of any size or type
   - Neon signs
   - Back-lit signs
   - Rotating drum or plank signs
   - LED lens Displays
   - Blank out signs
• Any type of sign that is not pixilated and cannot be programmed to display a nearly infinite quantity of messages
• DMS and DDMS that have a pixel technology comprised of something other than high-intensity light emitting diodes (LED). Examples of unacceptable technologies are incandescent lamp, liquid crystal, fiber optic, flip disk, flip-fiber combination, and flip-LED combination
• Outdoor electronic signs that are used for purposes other than roadway/motorway traffic management

At the ITS Management Section’s request, the manufacturer shall document the total number of years it has been active in supplying DMS and DDMS, the number of years at its current address, the number of employees. In addition, the DMS manufacturer must have an in house Quality Management System (QMS) in place that is certified by an approved registrar to ISO 9001:2008 or the latest released standard of ISO 9001. The manufacturer’s pre-build technical submittal must provide a copy of the company’s ISO 9001 certification.

The manufacturer shall have manufactured DMS and DDMS for at least 10 projects each with a minimum of 5 signs. These installations shall represent multiple state departments of transportation within the United States. These signs shall have been in operation for at least five (5) years prior to the let date of this contract. The DMS for existing installations shall be operated via remote communications including dial-up telephone, cellular telephone, spread spectrum radio, or fiber optic networks.

A summary of the installation base including the following shall be submitted with the technical submittal:
• Organization’s name and country
• Contact person name, telephone number, fax number, and email address
• Date of project installation
• Summary of project scope and deployed sign characteristics

This manufacturer shall include three (3) references. The reference installations shall include DMS and DDMS that have been installed and in production for at least five (5) years. Reference information shall include:
• Organization’s name and country
• Contact person name, telephone number, fax number, and email address
• Date of project installation
• Summary of project scope

6. Self-Certification: The DMS manufacturer must provide self-certification, including a statement of conformance and copies of test reports, indicating that the following tests have been performed and passed.

Product test reports must be submitted for testing of the following National Transportation Communication for ITS Protocol (NTCIP) standards:
7. **Customer Service:** The DMS manufacturer must have a customer service department that provides technical support and services for the manufacturer’s DMS systems. The manufacturer’s customer service department shall be available via telephone, e-mail, and fax during business hours Monday-Friday. Third party call centers do not meet this requirement. The manufacturer must also offer bench level repair services for failed components and stocking of most parts for replacement. The manufacturer must maintain an online record of service requests and the actions taken to address and resolve the service issues.

The manufacturer must include a description of its available customer support services in the pre-build technical submittal.

Ensure that a manufacturer's representative is available to assist the Contractor technical personnel during pre-installation testing and installation.

8. **Product Testing:** Product test reports shall be submitted for the following testing:

- NEMA Standards Publication TS4-2016, Hardware Standards for Dynamic Message Signs (DMS), with NTCIP Requirements – Section 2, Environmental Requirements. Test report shall detail results of mechanical vibration and shock, electrical noise and immunity, temperature, and humidity.

The supplier must provide a record of each test performed including the results of each test. The report must include a record of the product test report and the test lab’s representative that witnessed the tests, including the signature of the lab’s representative. The test reports must be provided to the Engineer for review as part of the technical submittal.

**B. DMS and DDMS Housing and Construction Specifications**

1. **General:** The DMS and DDMS housing shall provide front service access for all LED display modules, electronics, environmental control equipment, air filters, wiring, and other internal DMS components.

All DMS and DDMS shall be front access at this time. Ensure front access signs meet the requirements of NEMA TS4-2016. Ensure access does not require specialized tools or excessive force.
The DMS and DDMS shall contain a full display matrix that shall display messages that are continuous, uniform, and unbroken in appearance to motorists and travelers. The display area shall be capable of displaying three (3) lines of 15 characters using an 18-inch tall font that meets the height to width ratio and character spacing in the Manual of Uniform Traffic Control Devices for Streets and Highways 2009 Edition (MUTCD) or NEMA TS4-2016 Series D font.

The pixel matrix shall be capable of displaying at minimum alphanumeric 6" high characters in accordance with the definition defined by NEMA TS 4 Hardware Standards for Dynamic Message Signs Standards.

Each display pixel shall be composed of multiple red, green, and blue LEDs. Other pixel technologies, such as fiber optic, flip disk, combination flip disk-fiber optic, combination flip disk-LED, liquid crystal, LED lenses, and incandescent lamp, will not be accepted.

The DMS and DDMS shall be able to display messages composed of any combination of alphanumeric text, punctuation symbols, and graphic images across multiple frames.

The overhead DMS and DDMS shall be capable of being mounted to structures with a sign skew of up to 15 degrees off perpendicular to the roadway.

2. **Legibility**: DMS and DDMS messages shall be legible from the DMS and DDMS display face under the following conditions:

   - During daylight conditions and when the speed limit is 55+mph messages must be legible from a minimum of 800 ft.
   - During night time conditions and when the speed limit is 55+mph messages must be legible from a minimum of 600 ft.
   - During daylight and night time conditions and when the speed limit is 55+mph the color of the DMS and DDMS indications shall be clearly visible for 2300 ft. at all times under normal atmospheric conditions.
   - When the DMS and DDMS is mounted so its bottom side is positioned between five feet and 19 feet above a level roadway surface.
   - 24 hours per day and in most normally encountered weather conditions
   - During dawn and dusk hours when sunlight is shining directly on the display face or when the sun is directly behind (silhouetting) the DMS.
   - When the motorist eye level is 3 feet to 12 feet above the roadway surface.

3. **Dimensions**: DMS housing dimensions shall not exceed either 94 inches high by 252 inches wide or 164.5 square feet at the face. DMS weight shall not exceed 1800 pounds. DDMS housing dimensions shall not exceed either 23 inches high by 134 inches wide or 21.41 square feet at the face. DDMS weight shall not exceed 200 pounds.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604
OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY

4. **Sign Construction:** DMS, DDMS, and sign controller components shall operate in a minimum temperature range of \(-30^\circ\text{F} \text{ to } +165^\circ\text{F} (-34^\circ\text{C} \text{ to } +74^\circ\text{C})\) and a relative humidity range of 0 to 99%, non-condensing. DMS, DDMS, and sign controller components shall not be damaged by storage at or temporary operational exposure to a temperature range of \(-40^\circ\text{F} \text{ to } +185^\circ\text{F} (-40^\circ\text{C} \text{ to } +85^\circ\text{C})\).

External DMS and DDMS component hardware (nuts, bolts, screws, standoffs, rivets, fasteners, etc.) shall be fabricated from hot dipped or mechanically galvanized steel, stainless steel, aluminum, nylon, or other durable corrosion-resistant materials suitable for the roadway signage application.

DMS, DDMS, and sign controller components shall be 100% solid-state, except for any environmental control fans and thermostats. DMS, DDMS, and sign controller components shall be designed to comply with applicable UL and NEC codes for DMS applications.

The presence of ambient radio signals and magnetic or electromagnetic interference, including those from power lines, transformers, and motors, shall not impair the performance of the DMS system. The DMS and DDMS system shall not radiate electromagnetic signals that adversely affect any other electronic device, including those located in vehicles passing underneath or otherwise near the DMS and its sign controller.

5. **DMS and DDMS Sign Housing:** The DMS and DDMS housing shall be constructed to have a neat, professional appearance. The housing shall protect internal components from rain, ice, dust, and corrosion in accordance with NEMA enclosure Type 3R standards, as described in NEMA Standards Publication 250, Enclosures for Electrical Equipment (1000 Volts Maximum).

All component parts shall be easily and readily accessible by a single person for inspection and maintenance. There shall be room for a technician to work. The housing shall be weather tight, and compliant to the NEMA 3R Standard.

The sign housing shall be capable of withstanding a wind loading of 90 mph without permanent deformation or other damages. The sign housing shall also be designed, stamped and signed by a Professional Engineer licensed in Arkansas to withstand current AASHTO specified group loading combinations including: sign weight, repair personnel and equipment, ice, and wind loads. The housing shall also meet strength requirements for truck-induced gusts as specified in NCHRP Report 412. The sign housing shall be engineered to withstand snow loading of 40 pounds per square foot, as well as the ability to be mounted in a manner that prevents the buildup of snow and creates a natural means by which snow can run off without impeding flow of traffic. The performance of the sign, including the visibility and legibility of the display, shall not be impaired due to continuous vibration caused by wind, traffic or other factors. The housing shall be designed to accommodate mounting on the rear vertical plane and shall
be structurally sufficient to be mounted to the sign support structure. The sign housing and structural components for the system including bolts and welds, shall be structurally sufficient to perform under all applicable loading conditions including gravity, wind, traffic, weather, roadway deicers, maintenance, and other environmental factors.

Working/Shop drawings showing the sign housing and brackets shall be included in the technical submittals. All parts shall be made of corrosion resistant materials, such as plastic, stainless steel or aluminum. Painted steel is not acceptable. No self-tapping screws shall be used. The exterior front face surfaces shall be finish coated by a system that meets or exceeds the AAMA Specification No. 2605. The finish shall be matte black. The main body of the sign housing shall be constructed of aluminum with a natural mill finish.

6. Front Face and Access Housing: The DMS and DDMS will not have exposed LED’s on the front face. The DMS and DDMS shall have front face panels that provide access to the sign housing as well as provide a high-contrast background for the DMS display matrix. The front face panels shall utilize an aluminum mask with an opening for each pixel that is large enough to not block any portion of the viewing cones of the LEDs. Each front face door panel will also be composed of a polycarbonate sheet that is used in combination with the aluminum mask, and is sealed to prevent water and other elements from entering the DMS and DDMS. The front face panel and mask should be thermally isolated and should capture most of the sun’s radiance without transmitting it to the DMS housing.

The front face panels should be easy to move and open, and should provide easy access to all components within the sign without having to remove any items.

7. Mounting Brackets: Multiple mounting brackets shall be bolted to the DMS and DDMS housing exterior rear wall to facilitate attachment of the DMS and DDMS to the support structure. Mounting brackets shall be:

- Attached to the DMS and DDMS structural frame members, not just the exterior sheet metal.
- Installed at the DMS and DDMS manufacturer’s factory.
- Attached to the DMS and DDMS using mechanically galvanized high-strength steel bolts.
- Attached to the DMS and DDMS using direct tension indicators to verify that mounting hardware is tightened with the proper amount of force.
- Designed and fabricated such that the installing technician or contractor can drill into them without penetrating the DMS and DDMS housing and compromising the housing’s ability to shed water.
- Installed such that all bracket-to-DMS and DDMS attachment points are sealed and water-tight.
- Able to be attached to a traffic signal mast arm of specified length as shown in plans as directed by the Engineer.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604
OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY

8. **Lifting Hardware:** For moving and installation purposes, multiple galvanized steel lifting eyebolts shall be attached to the top of the DMS and DDMS housing. Eyebolt hardware shall attach directly to the DMS and DDMS housing structural frame and be installed at the DMS factory. All mounting points for eyebolts shall be sealed to prevent water from entering the DMS and DDMS housing. Lifting hardware, as well as the housing frame, shall be designed such that the DMS and DDMS can be shipped and handled without damage or excessive stress being applied to the housing prior to or during DMS and DDMS installation on its support structure.

The lifting eyebolts shall be easily removed by one individual without opening or entering the display and without any risk of compromising water-tightness. Special tools shall not be required. Removal of the eyebolts shall not create holes and no replacement bolts or other hardware shall be necessary to seal the cabinet.

9. **Exterior Finish:** DMS and DDMS front face panels and front face border pieces shall be coated with semi-gloss black polyvinylidene fluoride (PVDF), or preapproved equivalent, applied in accordance to American Architectural Manufacturers Association (AAMA 2605) which has an expected outdoor service life of 10 to 15 years.

All other DMS and DDMS housing surfaces, including the DMS and DDMS mounting brackets, shall be natural mill-finish aluminum.

10. **Electronics:** All electronic components, except printed circuit boards, shall be commercially available, easily accessible, replaceable, and individually removable using conventional electronics repair methods.

All cables shall be securely clamped/tied in the sign housing. No adhesive attachments will be allowed.

All Printed Circuit Boards (PCBs) shall be completely conformal coated with a silicone resin that meets the IPC CC-830 standard. The exception for this coating shall be the pixels on the front of the PCB of the LED motherboards and any components in sockets.

All discrete components, such as resistors, capacitors, diodes, transistors, and integrated circuits shall be individually replaceable. Components shall be arranged so they are easily accessible for testing and replacement. All circuit designs shall utilize high quality electronic components and shall provide a meantime before failure of at least 3 years.

The sign and the controller shall be capable of operating with 120/240 VAC, 50amp per leg, 60 Hz, single phase power.

The Contractor shall be responsible for locating the nearest electrical power and telephone sources and connecting those sources to the appropriate terminations with
the LED DMS and DDMS. The Contractor shall cooperate with the local electrical and telephone utilities to establish a service account at the direction of the Engineer.

11. LED Display Modules: The DMS and DDMS shall contain LED display modules from one source that include an LED pixel array, and LED driver circuitry. Ensure the modules are fully interchangeable throughout the manufacturer's sign systems. These modules shall be mounted adjacent in a two-dimensional array to form a continuous LED pixel matrix. Ensure the display modules are rectangular and have an identical vertical and horizontal pitch between adjacent pixels. Ensure that the separation between the last column of one display module and the first column of the next module is equal to the horizontal distance between the columns of a single display module. Full-color signs must have a pitch equal to or less than 35mm. Each LED display module shall be constructed as follows:

- All LED modules shall be manufactured and designed to IPC standards.
- Ensure that any devices used to secure LEDs do not block air flow to the LED leads or block the LED light output at the required viewing angle.
- Ensure that all components on the LED side of PCBs are black.
- Each LED display module shall be mounted to the rear of the display's front face panels using durable non-corrosive hardware. The modules shall be mounted such that the LEDs emit light through the face panel's pixel holes and such that the face panel does not block any part of the viewing cone of any of the LEDs in any pixels. The use of light enhancing lenses to achieve defined viewing cone shall be cause for rejection.
- LED display module power and signal connections shall be a quick-disconnect locking connector type. Removal of a display module from the DMS shall not require a soldering operation.
- All exposed metal on both sides of each printed circuit board, except connector contacts, shall be protected from water and humidity exposure by a thorough application of conformal coating. Bench level repair of individual components, including discrete LED replacement and conformal coating repair, shall be possible.
- Removal or failure of a single LED module shall not affect the operation of any other LED module or sign component. Removal of one or more LED modules shall not affect the structural integrity of any part of the sign.
- It shall not be possible to mount an LED display module upside-down or in an otherwise incorrect position within the DMS display matrix.
- All LED display modules, as well as the LED pixel boards shall be identical and interchangeable throughout the DMS.
- Ensure that the sign controller continuously measures and monitors all LED module power supply voltages and provides the voltage readings to the TMC or a laptop computer on command.

12. LED Pixels: Each LED module shall contain a printed circuit board to which LED pixels are soldered. Ensure that all pixels in all signs in a project, including operational support
supplies, have equal color and on-axis intensity. Ensure that the sign display meets the luminance requirements of NEMA TS4-2016 Section 5.4 for light emitting signs connected at full power. Ensure that amber displays produce an overall luminous intensity of at least 9200 candelas per square meter when operating at 100% intensity. Provide the LED brightness and color bins that are used in each pixel to the Engineer for approval. Ensure that the LED manufacturer demonstrates testing and binning according to the International Commission on Illumination (CIE) 127 (1997) standard.

The LED pixel matrix shall conform to the following specifications:

- The distance from the center of one pixel to the center of all adjacent pixels, both horizontally and vertically, shall be ≤ 35mm.
- Each pixel shall consist of a minimum of one (1) independent string of discrete LEDs for each color. All pixels shall contain an equal quantity of discrete LEDs.
- The failure of an LED string or pixel shall not cause the failure of any other LED string or pixel in the DMS.

13. Discrete LEDs: DMS and DDMS pixels shall be constructed with discrete LEDs manufactured by a reputable manufacturer that has been in business for at least 10 years. Discrete LEDs shall conform to the following specifications:

- The LED packages shall be fabricated from UV light resistant epoxy.
- All LEDs shall have a nominal viewing cone of 30 degrees with a half-power angle of 15 degrees measured from the longitudinal axis of the LED. Viewing cone tolerances shall be as specified in the LED manufacturer's product specifications and shall not exceed +/- 5 degrees. Using optical enhancing lenses with 15 degree LED’s will not conform to 30 degree half-power viewing cone specifications and will be cause for rejection.
- The LED manufacturer shall perform color sorting of the bins. Each color of LEDs shall be obtained from no more than two (2) consecutive color “bins” as defined by the LED manufacturer.
- The LED manufacturer shall perform intensity sorting of the bins. LEDs shall be obtained from no more than two (2) consecutive luminous intensity “bins” as defined by the LED manufacturer.
- The various LED color and intensity bins shall be distributed evenly throughout the sign and shall be consistent from pixel to pixel. Random distribution of the LED bins shall not be accepted.
- The LED manufacturer shall assure color uniformity and consistency on the LED display face within the 30-degree cone of vision. Inconsistent color shifts or intensity will be cause for rejection.
- All LEDs used in all DMS provided for this contract shall be from the same manufacturer and of the same part number, except for the variations in the part number due to the intensity and color.
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- The LEDs shall be rated by the LED manufacturer to have a minimum lifetime of 100,000 hours of continuous operation while maintaining a minimum of 50% of the original brightness.

14. Pixel Drive Circuitry:
- Each LED driver circuit shall be powered by 24 VDC from external regulated DC power supplies.
- The voltage of each power input shall be measured and reported to the sign controller as pass fail upon request. Each driver circuit shall also contain a status LED for the power supplies that indicates which voltage input is being used.
- The LED driver circuitry shall be able to detect that individual LED strings or pixels are stuck off and shall report the pixel status to the sign controller upon request.

15. Regulated DC Power Supplies: The LED pixel display modules shall be powered with a minimum of 2 auto-ranging regulated switching power supplies that convert the incoming AC to DC. Power supplies shall be wired in a redundant configuration that uses multiple supplies for the DMS and DDMS display matrix.

Power supplies shall be redundant and rated such that if one supply or 25% of the supplies in a group, whichever is greater, completely fails, the remaining supply(s) shall be able to operate 40% of the pixels in that display region at 100% duty cycle when the internal DMS and DDMS air temperature is +140ºF (60ºC) or less.

Each power supply shall receive 120VAC power from separate circuits on separate circuit breakers, such that a single tripped breaker will not disconnect power from more than one supply.

The power supplies shall be sufficient to maintain the appropriate LED display intensity throughout the entire operating input voltage range.

The power supplies used to power the LED pixel modules must be identical and interchangeable throughout the DMS and DDMS.

The power supplies used to power the LED pixel modules shall have an application of acrylic conformal coating to protect from the environmental elements and must be UL listed or recognized.

The regulated DC power supplies shall conform to the following specifications:
- Automatic output shut down and restart if the power supply overheats or one of the following output faults occurs: over-voltage, short circuit, or over-current
- Power supplies shall be UL listed
- Printed circuit boards shall be protected by an acrylic conformal coating
- Nominal maximum output power rating of 1000 watts
- Operating input voltage range shall be a minimum of 90 to 264 VAC
16. **Environmental Monitoring Systems:** A minimum of three photocells shall be installed on the sign. These devices shall permit automatic light intensity measurement of light conditions at each sign location. These photocells shall be mounted in a manner to measure front, rear and ambient light conditions.

Ensure the sign meets the requirements of NEMA TS4-2016. Ensure that the sensors provide accurate ambient light condition information to the sign controller for automatic light intensity adjustment. Ensure that the automatic adjustment of the LED driving waveform duty cycle occurs in small enough increments that the sign's brightness changes smoothly, with no perceivable brightness change between adjacent levels. Ensure that stray headlights shining on the photoelectric sensor at night do not cause LED brightness changes.

17. **Interior DMS and DDMS Environmental Control:** The ventilation systems for front-access DMS and DDMS must meet the requirements of NEMA TS4-2016. Ensure the ventilation system may be tested on command from remote and local control access locations. Ensure the sign includes a sensor or a sensor assembly to monitor airflow volume to predict the need for a filter change. Ensure the ventilation system fans possess a 100,000-hour, L10 life rating. The DMS and DDMS shall contain systems for cabinet ventilation and safe over-temperature shutdown.

18. **Housing Ventilation System:** Ensure the sign includes a fail-safe ventilation subsystem that includes a snap disk thermostat that is independent of the sign controller. Preset the thermostat at 130°F. If the sign housing's interior reaches 130°F, the thermostat must override the normal ventilation system, bypassing the sign controller and turning on all fans. The fans must remain on until the internal sign housing temperature falls to 115°F.

The ventilation system shall consist of two or more air intake ports. Each intake port shall be covered with a filter that removes airborne particles. One or more ball bearing-type fans shall be mounted at each intake port. These fans shall positively pressure the DMS cabinet. Ensure the ventilation system is automatically tested once each day and that it may be tested on command from remote and local control access locations. Ensure the sign includes a sensor or a sensor assembly to monitor airflow volume to predict the need for a filter change. Ensure the ventilation system fans possess a 100,000-hour, L10 life rating.

Fans and air filters shall be removable and replaceable from inside the DMS and DDMS housing.

Ensure that the sign controller continuously measures and monitors the temperature sensors. Ensure that the sign blanks when a critical temperature is exceeded and that

- Power supply efficiency shall be a minimum of 80%
- Power supply input circuit shall be fused
the sign will report this event when polled. Ensure that remote and local computers can read all temperature measurements from the sign controller.

One exhaust port shall be provided for each air intake port. All exhaust port openings shall be screened to prevent the entrance of insects and small animals.

An aluminum hood attached to the rear wall of the DMS and DDMS shall cover each air intake and exhaust port. All intakes and exhaust hoods shall be thoroughly sealed to prevent water from entering the DMS and DDMS.

The DMS and DDMS shall automatically shut down the LED modules to prevent damaging the LEDs if the measured internal cabinet air temperature exceeds a maximum threshold temperature.

19. Transient Protection: Provide surge protective devices (SPD) installed or incorporated in the sign system by the manufacturer to guard against lightning, transient voltage surges, and induced current on both sides of all electronics.

The system power shall be protected by two stages of transient voltage suppression devices. Also, communication lines shall be protected by two stages of transient voltage suppression devices as required in the Sign Controller Communication Interface section of this specification. In both cases, tripping of each stage (or both if tripped simultaneously) of the surge protection shall cause the sign controller to call central and report the error condition.

C. Manufacturer-Supplied Sign Controller Specifications

1. General: Ensure that the sign controller monitors the sign in accordance with NEMA TS-2016, Section 9. Ensure the sign monitors the status of any photocells, LED power supplies, humidity, and airflow sensors. Ensure sign controllers use fiber optic cables for data connections between the sign housing and ground-level cabinet. If required, media converters and/or any other associated equipment are considered acceptable to accompany fiber optic connections to ensure connectivity between devices. Ensure that the sign controller is capable of displaying a self-updating time and date message on the sign. Ensure that sign controllers within cabinets are rack-mountable or DIN-rail mountable, designed for a standard EIA-310 19 inch rack or DIN Rail, and include a keypad and display. Users should be able to edit operating parameters (such as flash rate, on and off times, calendar functions, blinking, etc.)

Each DMS shall be controlled and monitored by a sign controller. The sign controller may monitor a single or multiple DMS and DDMS. The sign controller shall be a stand-alone microprocessor-based system, which does not require continuous communication with DMS control software in order to perform most DMS control functions.

The sign controller shall meet the following operational requirements:
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- Communicate using embedded NTCIP protocol
- Contain memory for storing changeable and permanent messages, schedules, and other necessary files for controller operation
- Include a front panel user interface graphical LCD and keypad for direct operation and diagnostics as described herein
- The sign controller shall have a minimum of one 10/100 Base-T Ethernet communication port with RJ45 connector for network connection.
- Ensure that the TMC or a laptop computer can be used to remotely reset the sign controller.

2. Front Panel Interface: This sign controller’s front panel shall include a menu driven graphical LCD with key pad. User should be able to complete the following operations with the front panel interface:
   - Monitor the current status of the sign controller, including the status of all sensors and a RGB what-you-see-is-what-you-get (WYSIWYG) representation of the message visible on the display face
   - Perform diagnostics testing of various system components, including pixels, power systems, sensors, and more
   - Activate, create, preview, and delete messages stored in memory
   - Blank the sign
   - Start and stop the schedule
   - Configure display parameters, including display size and color technology
   - Configure date and time
   - Configure communications port settings and NTCIP options
   - Configurable level of password protection per user
   - Control brightness levels

The sign controller shall have an electronic changeable memory. This memory shall be formed by flash or battery-backed static RAM integrated circuits that retain the data in memory for a minimum of 30 days following a power loss. This changeable memory shall be used to store messages and schedules.

The DMS sign controller shall contain a computer-readable clock that has a battery backup circuit. The battery shall keep the clock operating properly for at least 30 days without external power, and the clock shall automatically adjust for daylight savings time and leap year using hardware, software, or a combination of both.

3. Communication, Message and Status Monitoring:

The DMS and DDMS should provide two modes of operation:
a. Remote operation, where the TMC or a remote laptop commands and controls the sign and determines the appropriate message or test pattern
b. Local operation, where the sign controller or an onsite laptop computer commands and controls the sign and determines the appropriate message or test pattern.

The DMS and DDMS should perform the following functions:

a. Control Selection - Ensure that local or remote sign control can be selected. Ensure that there is a visual indicator on the controller that identifies whether the sign is under local or remote control.

b. Message Selection - Ensure that the sign controller can select a blank message or any one of the messages stored in the sign controller's nonvolatile memory when the control mode is set to local.

c. Message Implementation - Ensure that the sign controller can activate the selected message.

Ensure that the sign can be programmed to display a user-defined message, including a blank page, in the event of power loss. Ensure that message additions, deletions, and sign controller changes may be made from either the remote TMC or a local laptop computer. Ensure that there is no perceivable flicker or ghosting of the pixels during sign erasure and writing periods.

4. DMS and DDMS Control Outputs: The DMS and DDMS sign controller shall transmit and receive data packets to and from the DMS and DDMS via dedicated fiber optic cables. Data transferred shall include pixel states, sensor values, and I/O readings from various devices, such as door sensors and power supply monitors. Pixel data shall include the states to be displayed on the sign face as well as diagnostic data retrieved from the LED drivers.

5. Ethernet Port: The DMS and DDMS sign controller shall contain a minimum of one (1) 10/100Base-T Ethernet communication port. This port shall be available for communicating from the central control system to the DMS and DDMS sign controller when an Ethernet network is available. The Ethernet port shall have a standard RJ45 connector.

Communications on the Ethernet port shall be NTCIP-compatible using the NTCIP 2202 Internet transport profile and the NTCIP 2104 Ethernet sub network profile. This shall permit the controller to be operated on any typical Ethernet network using the TCP/IP and UDP/IP protocols.

6. Controller Addressing: The DMS and DDMS sign controller shall use whatever addressing scheme is appropriate for the NTCIP network types used for communications. The controller addressing shall be configurable through the front panel user interface.

NTCIP 2101 (PMPP) networks shall be configured with an address in the range 1 to 255 with a default address of 1. NTCIP 2104 (Ethernet) networks shall use a static IP address. Both the IP address and subnet shall be configurable.
7. **Transient Protection:** The Ethernet communication ports in the DMS and DDMS sign controller shall be protected with surge protection between each signal line and ground. This surge protection shall be integrated internally within the controller.

8. **DMS Traffic Cabinet:** The sign controller and all necessary electronics for communication with the DMS shall be mounted in a 5052 aluminum or 316 stainless steel traffic cabinet that meets or exceeds NEMA 3R standards for an outdoor enclosure. The minimum dimensions of the cabinet are 17 in. Depth X 36 inches Width X 49 in. Height. The cabinet shall have a built-in lock and DIN rails/mounts. All components shall be DIN rail mounted where possible. The cabinet must be of size that will accommodate a 19" rack mounted sign controller, and of a height suitable for containing all required hardware with ease of access. The traffic cabinet must be easily accessible from its location, and it must never require a lane closure for routine access. DDMS traffic cabinets are paid for separately and are not considered subsidiary to pay item, “Overhead DDMS Assembly”. See special provision “Intelligent Transportation System Cabinet” for details.

D. **Power Connections and Source**

1. The DMS sign and the controller shall be capable of operating with 120/240 VAC, 50amp per leg, 60 Hz, single phase power. The sign shall have a 50-amp two-pole breaker (common trip) main, 120/240 VAC, single phase, four wire load center with 20 circuit capability. Each circuit in the sign shall be powered from a circuit breaker. Inside the sign housing, all 120 VAC service lines shall be independently protected by a thermomagnetic circuit breaker at the sign housing entry point. All 120 VAC wiring shall be located in conduit, pull boxes, raceways, or control cabinets as required by the National Electrical Code (NEC). No 120 VAC wiring shall be exposed within or outside of the sign housing. The sign housing shall not be considered as a raceway or control cabinet. There shall be a minimum of one GFI Duplex outlets installed inside the sign housing. Provide Type XHHW, or preapproved equivalent, power cables sized as required by the NEC for acceptable voltage drops while supplying alternating current to the sign.

2. The Contractor shall be responsible for locating the nearest electrical power sources and connecting those sources to the appropriate terminations with the LED DMS and DDMS. The Contractor shall cooperate with the local electrical and telephone utilities to establish a service accounts at the direction of the Engineer. For the overhead DMS and DDMS Assemblies, the service point assembly, conduit, pull boxes, poles, connectors, and all associated equipment are separate contract pay items and are not considered subsidiary to pay items, “Overhead DMS Assembly” and “Overhead DDMS Assembly”. See special provision “Service Point Assembly”, *Standard Specifications for Highway Construction, 2014 Edition* and the construction plans for details.
E. Messaging

The DMS and DDMS controller shall have the ability to display messages on the DMS and DDMS display face as required herein.

1. Message Presentation on the DMS and DDMS Display Matrix: The sign controller shall control the LED drivers in a manner that causes the desired message to display on the DMS sign. At a minimum, the sign controller shall support the following features as described in the DMS and DDMS specification:

- Display of alpha numeric characters, including letters, numbers, symbols, and punctuation
- Selection of particular character fonts style
- Full graphic capabilities
- Horizontal alignment of text on the display, including left, center, and right justification
- Vertical alignment of text on the display, including top, middle, and bottom justification
- Adjusting the spacing horizontally between characters or vertically between lines of text
- Alternating between pages of a multiple-page message
- Travel time capabilities
- Must be able to display various interstate symbols such as badges and shields containing the appropriate interstate numbers
- Display of graphic bitmaps or jpeg files of various sizes ranging to very small to the size of the entire DMS matrix

2. Message Effects: The DMS and DDMS shall be able to display messages using the following types of effects:

- Static Message – The selected message is displayed continuously on the sign face until the sign controller blanks the sign or causes the display of another message
- Flashing Message – All or part of a message is displayed and blanked alternately at rates between 0.1 seconds and 9.9 seconds. The flash rate is user programmable in increments of 0.1 seconds
- Scrolling Message – The message moves across the display face from one side to the other. The direction of travel is user selectable as either left-to-right or right-to-left
- Multiple-Page Message – A message contains up to six different pages of information, with each page filling the entire pixel matrix. Each page’s display time is user programmable from 0.1 seconds to 25.5 seconds, and adjustable in increments of 0.1 seconds.

3. Message Activation: Messages shall be activated on a DMS in three ways:
• Manual – An operator using the front panel LCD/keypad interface or NTCIP-compatible control software manually instructs a particular message to be activated.

• Schedule – The internal time-based scheduler in the DMS may be configured to activate messages at programmable times and dates. Prior to activation, these messages and their activation times and dates shall be configured using the control software.

• Events – Certain events, like a power loss, may trigger the activation of pre-configured messages when they occur. These events must be configured using the control software.

A displayed message shall remain on the sign until one of the following occurs:

• The message’s duration timeout expires
• The controller receives a command to change the message
• The controller receives a command to blank the sign
• The schedule stored in the controller’s memory indicates that it is time to activate a different message
• A special event, such as a loss of communication, occurs that is linked to message activation

It shall be possible to confer a “priority” status onto any message (such as a Morgan Nick Amber Alert), and a command to display a priority message shall cause any non-priority message to be overridden.

4. Schedule Activation: The DMS and DDMS sign controller shall support the activation of messages based on a time/date-based schedule. The format and operation of the message scheduler shall be per the NTCIP 1201 and NTCIP 1203 standards.

5. Display of Alphanumeric Text: The DMS and DDMS sign controller shall support the storage needed for all installed fonts and static sign graphics. All fonts and graphics shall be submitted to the engineer for approval. Each font shall support up to 255 characters. All text font files shall include the following characters:

• The letters “A” through “Z”, in both upper and lower case
• Decimal digits “0” through “9”
• A blank space
• Eight (8) directional arrows
• Punctuation marks, such as: . , ! ? ‘ ’ “ ” : ;
• Special characters, such as: # & * + / ( ) [ ] < > @

F. Material, Manufacturing, and Design Standards
Manufacturer shall ensure that all products supplied meet or exceed industry standards including:

a) General DMS Requirements – The DMS shall be designed in accordance with NEMA Standards Publication TS4 - 2016, Hardware Standards for Dynamic Message Signs (DMS), with NTCIP Requirements.

b) Aluminum Welding – The DMS housing must be designed, fabricated, welded, and inspected in accordance with the latest revision of ANSI/AWS D1.2 Structural Welding Code-Aluminum.

c) Electrical Components – High-voltage components and circuits (120 VAC and greater) shall be designed, wired, and color-coded per the National Electric Code.

d) Environmental Resistance – The DMS control and power enclosure shall be designed to comply with type 3R enclosure criteria as described in NEMA Standards Publication 250-2003, Enclosures for Electrical Equipment (1000 Volts Maximum)

e) Radio Frequency Emissions – All equipment shall be designed in accordance with Federal Communications Commission (FCC) Part 15, Subpart B as a “Class A” digital device.

f) Product Electrical Safety – The DMS and associated equipment and enclosures shall be designed to comply with applicable UL and NEC codes for DMS applications.

g) Structural Integrity – The DMS housing shall be designed and constructed to comply with all applicable sections of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 4th edition (2001) with 2003 and 2006 Interims, as well as the fatigue resistance requirements of NCHRP Report 412, Fatigue-Resistant Design of Cantilevered Signal, Sign, and Light Supports.

h) Communication Protocols – The sign controller hardware/firmware and DMS control software shall conform to the applicable National Transportation Communication for ITS Protocol (NTCIP) standards. The NTCIP testing must have been completed using industry accepted test tools such as the NTCIP Exerciser, Trevilon’s NTester, Intelligent Devices’ Device Tester, and/or Frontline’s FTS for NTCIP.

G. Performance Test

This item shall consist of the contractor providing a six (6) month guarantee and proving the soundness of the DMS and DDMS assembly and related electrical components installed at each location according to these specifications and at locations shown on the plans or as directed. This guarantee period begins on the date of acceptance by the Engineer.

The Contractor shall conduct a performance test, which shall consist of a continuous 30-day period of operation without a major malfunction. A major malfunction is considered to be any occurrence, other than a power or communication failure beyond the Contractor’s control that renders the installation inoperative for more than five (5) minutes.
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The performance test cannot commence until ITS Management Section Technician has inspected DMS, DDMS, and Assemblies and has notified RE office that Performance Test can commence.

The Contractor shall obtain and assign to the Department transferable manufacturers' warranties or guarantees on all electrical and mechanical equipment, consistent with those provided as customary practice. The manufacturer’s warranty transferred to the Department shall be for a period of at least two (2) years. The Contractor shall guarantee satisfactory in-service operation of the mechanical and electrical equipment and related components for a period of 6 months following completion of the 30-day performance test, at no cost to the Department.

Defective equipment or accessories shall be repaired or replaced according to applicable specifications and to the satisfaction of the Engineer within 48 hours during the 30-day performance test and the 6 month guarantee period.

If the DMS and DDMS cannot be repaired such that the performance test can be resumed within 48 hours of notification of a failure of defect, then the 30-day performance test shall start over at Day 1 on successful repair of the DMS and DDMS to the Engineer's satisfaction.

H. Technical Submittal

The DMS manufacturer must provide a complete pre-build technical submittal within 30 days of contract award and shall not proceed with DMS manufacture until the ITS Section has approved the submittal. The DMS manufacturer shall provide one (1) copy of the submittal in electronic format.

The submittal must include:

- All DMS manufacturer qualification information, as specified herein
- DMS and DDMS shop drawing, including an illustration of the recommended installation method
- AC power requirements, including the number of legs, current draw per leg, and typical site power consumption
- Major DMS and DDMS schematics in block diagram form, including AC power distribution inside and outside the DMS and DDMS, DC power distribution within the DMS and DDMS, and control signal distribution inside and outside the DMS and DDMS
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• Drawings of major DMS and DDMS components, including LED display modules, driver boards, control/logic components, environmental control assemblies, DMS sign controller, control equipment cabinet assembly, and control cabinet mounting footprint

• Catalog cut sheets for major DMS and DDMS components, including front face paint material, polycarbonate face material, LEDs, regulated DC power supplies, circuit board conformal coating material, hookup wire, signal cable, surge suppression devices, panel board, circuit breakers, utility outlets, sign controller, ventilation/cooling fans, heaters, ventilation filter, thermostats, and any other major system components

• Test reports and certification for all items identified in the “Product Testing” specifications herein

The pre-build submittal shall also include the following background information about the DMS manufacturer:

• Full corporate name with corporate address

• Contact person name, telephone number, fax number, and email address

• Names and qualifications of the primary project team members, including the following: sales person, project manager, product manager, application engineer, and manufacturing manager

• Number of years in business under the current corporate name

• Copy of the DMS manufacturer’s in-house quality management system

• Copy of the DMS manufacturer’s certified welding procedure

• General corporate literature

• DMS and DDMS product literature

Failure to provide complete and accurate submittal information, as specified herein, will be cause for rejecting the DMS manufacturer.

I. Method of Measurement

1. Overhead DMS Assembly shall be measured for payment by the number of units each, complete with all components and requirements provided as specified in this specification and delivered as directed by the Department.
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2. Overhead DDMS Assembly shall be measured for payment by the number of units each, complete with all components and requirements provided as specified in this specification and delivered as directed by the Department.

J. **Basis of Payment**

1. Work completed and accepted under this item and measured as provided above shall be paid for at the contract unit price bid for each overhead dynamic message sign assembly, which price shall be full compensation for furnishing and installing the overhead dynamic message sign assembly, control cabinet, wiring, communication and all materials, equipment, tools, labor and incidentals necessary to complete the work. Partial payments may be made at the discretion of the Engineer. A partial payment of 50% will be allowed at the time of delivery with the remaining 50% to be paid after successful completion of the 30-day performance test.

2. Work completed and accepted under this item and measured as provided above shall be paid for at the contract unit price bid for each overhead dedicated dynamic message sign assembly, which price shall be full compensation for furnishing and installing the overhead dedicated dynamic message sign assembly, wiring, communication and all materials, equipment, tools, labor and incidentals necessary to complete the work. Partial payments may be made at the discretion of the Engineer. A partial payment of 50% will be allowed at the time of delivery with the remaining 50% to be paid after successful completion of the 30-day performance test.

**Payment will be made under:**

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<th>Pay Item</th>
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<tr>
<td>Overhead DMS Assembly</td>
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DESCRIPTION. This item consists of furnishing and installing a Street Name Sign mounted on a traffic signal mast arm at locations designated on the plan sheets or as directed by the Engineer. All construction and materials shall be in accordance with the Standard Specifications for Highway Construction, Edition of 2014, with applicable supplemental specifications.

MATERIALS AND CONSTRUCTION REQUIREMENTS. Contractor shall provide all mounting hardware, sign blank, sheeting, tools, equipment and labor necessary to complete the installation. Sign design and construction shall be as shown on the plan sheets or as directed by the Engineer.

METHOD OF MEASUREMENT. Completed and accepted Street Name Sign shall be measured by the unit.

BASIS OF PAYMENT. Work completed, accepted and measured as provided above will be paid at the contract unit price bid for Street Name Sign which price shall be full compensation for furnishing the sign, mounting hardware, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

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<tr>
<td>Street Name Sign</td>
<td>Each</td>
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Description. This item shall consist of furnishing and installing Omni-directional breakaway sign supports for roadside mounted signs according to these specifications and to the dimensions and details and at the locations shown on the plans or as directed.

Materials. The posts shall conform to the Standard Specification for Electric-Resistance-Welded Metallic-Coated Carbon Steel Mechanical Tubing, ASTM designation A787. The length of each post for each sign shall be verified by the Contractor before ordering to meet the existing field conditions and to conform to the specified sign mounting heights.

The Contractor shall submit to the Engineer certified mill test reports showing chemical analysis and physical tests. The square sign post tubing shall be hot-dipped galvanized conforming to ASTM specification A653 designation G90. The weld is zinc-coated after scarfing operation. The cross section of the post shall be square tubing formed of 10 gauge steel, carefully formed into size, and induction welded in such a manner that neither weld nor flash shall interfere with telescoping properties.

Holes shall be 3/8” in diameter on 1” centers for the entire length of the post. Holes shall be on the center line of each side in true alignment and opposite to each other. All holes and sheared ends shall be free from burrs.

All high strength bolts, nuts, and washers shall comply with AASHTO M l64M. Shims shall be fabricated from brass shim stock or strip complying with ASTM B 36.

Concrete for footings shall comply with Section 802 for Class S concrete. The Department will perform all acceptance sampling and testing at the frequencies shown for Contractor acceptance testing in Subsection 802.06. Reinforcing steel shall comply with Section 804 for Grade 40. Footings for standard sign supports shall not be reinforced.

Hardware required for attachment of the sign(s) to the support shall comply with Section 724.

Construction Requirements. Excavation, backfill, compaction, and disposal of surplus materials shall be performed according to Section 801. Compaction shall be accomplished to the extent necessary to prevent future settlement of the backfill. Disturbed surfaces shall be returned to the original condition.

The applicable provisions of Sections 802 and 804 shall govern the construction and installation of concrete and reinforcing steel.

Field welding will not be permitted except upon approval in writing by the Engineer. The Omni-directional breakaway sign support shall be constructed and installed at the locations shown on the plans or as directed. All sign supports shall provide a minimum vertical and horizontal clearance as shown on the plans. To ensure proper clearances, dimensions of the structure that affect clearances shall be verified by the Contractor by field measurements before fabrication begins. Sign supports shall be erected so that the sign face is plumb and at right angles
to the road unless otherwise directed by the Engineer. Subsequent to erection, any damaged galvanized coating shall be repaired according to Subsection 807.88.

The procedure for assembly of base connection, as shown on the plans, shall be followed explicitly.

Method of Measurement. Omni-directional breakaway sign supports will be measured by the unit. One unit consists of the post(s) and all bolts, nuts, washers, brackets, and other hardware necessary to complete the installation and mount the sign(s). The fabrication and installation of the sign will be paid for under Section 725 or 726.

Basis of Payment. Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per each for Square Omni-directional breakaway sign supports of the type specified, which price shall be full compensation for furnishing, fabricating, and installing the support; and for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omni-directional breakaway sign supports (Type__)</td>
<td>Each</td>
</tr>
</tbody>
</table>
Section 733 Video Detector with Radio Interface of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 733.02 Materials is hereby amended by adding the following:

(h) Video Processor, Edge Card - Unit shall insert into a standard NEMA Vehicle Detector Rack taking the position of a single four-channel, 1 1/8” wide (single width) or a single four-channel 2” wide (double width) card slot. Unit shall output to the standard vehicle channels with the provision to add extender cards for additional detector channels. Units shall be available for one or two video detector (camera) inputs.

(i) Video Edge Card Extender - Unit shall insert into a standard NEMA Vehicle Detector Rack taking the position of one card slot and be placed directly to the left of the associated Video Processor Edge Card. Unit shall output to standard vehicle channels utilizing output channels from Video Processor Edge Card.

(j) Vehicle Detector Rack – Unit consists of a standard NEMA TS2 Type 2 card rack unit with power supply, of the number of channels specified. Unit shall be configured with four (4) channels occupying one card slot of the rack. Unit shall be wired to be suitable for use with two (2) or four (4) channel card rack loop detectors, edge card video detectors, or video edge card extenders. Card rack shall be supplied with double width card slots if double width cards are utilized.

(k) Multi Port Edge Card Switch – In lieu of providing a multi channel processor, contractor may utilize Video Processor, Edge Card with Extender Cards mounted in a Vehicle Detector Rack. When two or more Edge Cards are utilized, in order to achieve full functionality, the control and display of the Edge cards shall be combined into a single point switch allowing Ethernet, direct connect, and programming of the individual Edge Cards through a single unit. In lieu of a Multi Port Edge Card Switch, an environmentally hardened -35°C to +74°C rated 8 port RJ45 100/1000 Base-T Ethernet managed switch with power supply and patch cords shall be supplied.

(l) Video Detector Alignment Unit – One programming module per job, for Zoom and focus of camera, shall be provided for alignment and setup of Detector. The module shall be given to the local government upon completion of the installation. The price for this unit shall be considered included in other items of the contract.

Subsection 733.03 Construction Requirements (C) Software is hereby deleted and the following substituted:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

EDGE CARD VIDEO PROCESSOR

(C) **Software** - Software required for monitoring, setup and programming of the system shall be supplied as subsidiary to this special provision for the item “Video Processor” or “Video Processor, Edge Card”, of the number of channels specified. Two licensed copies shall be required for the job. Software shall be windows based and operate from an IBM compatible, laptop with Windows XP or later operating system. If other programming device is required, one unit shall be supplied and it shall be considered subsidiary to this special provision.

Subsection 733.04 **Method of Measurement** is hereby amended by **adding** the following:

(i) Video Processor, Edge Card of the number of inputs specified shall be measured by the unit.

(j) Video Edge Card Extender shall be measured by the unit.

(k) Vehicle Detector Rack of the number channels specified shall be measured by the unit.

(l) Multi Port Edge Card switch is included in other items of the contract.

Subsection 733.05 **Basis of Payment** is hereby amended by **adding** the following:

(i) **Video Processor, Edge Card** - Work completed and accepted under this item and measured as provided above, shall be paid for at the contract unit price for Video Processor, Edge Card of the number inputs specified; which price shall be full compensation for providing and installing the device, wiring, configuring, and testing the device; and shall also be for all labor, equipment, tools, and incidentals necessary to complete the work.

(j) **Video Edge Card Extender** - Work completed and accepted under this item and measured as provided above, shall be paid for at the contract unit price for Video Edge Card Extender; which price shall be full compensation for providing and installing the device, wiring, configuring, and testing the device; and shall also be for all labor, equipment, tools, and incidentals necessary to complete the work.

(k) **Vehicle Detector Rack** - Work completed and accepted under this item and measured as provided above, shall be paid for at the contract unit price for Vehicle Detector Rack of the number channels specified; which price shall be full compensation for providing and installing the device, wiring, configuring, and testing the device; and shall also be for all labor, equipment, tools and incidentals necessary to complete the work. Controller cabinet modifications, and removal of equipment inside the cabinet, and
other work necessary for installation of the device shall be considered included in the price of this item.

(l) Multi Port Edge Card Switch - Work completed and accepted under this item will not be paid separately, but shall be included in the cost of other items of the contract where two or more Video Processors, Edge Card are utilized in the cabinet.

(m) Video Detector Alignment Unit - Work completed and accepted under this item will not be paid separately, but shall be included in the cost of other items of the contract.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Processor, Edge Card ( ___ Camera)</td>
<td>Each</td>
</tr>
<tr>
<td>Video Edge Card Extender</td>
<td>Each</td>
</tr>
<tr>
<td>Vehicle Detector Rack ( ___ channel)</td>
<td>Each</td>
</tr>
</tbody>
</table>
DESCRIPTION. This item consists of rotating the existing video detectors to aim at new video zones at various locations as shown on the plans and directed by the Engineer.

MATERIALS. No additional materials should be needed for the rotation.

METHOD OF MEASUREMENT. Video detector rotation shall be measured by the unit.

BASIS OF PAYMENT. Work completed, accepted and measured as provided above will be paid for at the contract unit price bids for each video detector rotated; which price shall be full compensation for equipment tools, and labor and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Detector Rotation</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

VIDEO DETECTOR (COLOR)

Section 733 Video Detector with Radio Interface of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The first sentence of Subsection 733.02, Materials. (a) Video Detector is deleted and the following substituted therefore:

All video detectors shall consist of a color (CLR) video camera with electro-mechanically operated optical zoom lens, cable, manual pan and tilt bracket, wiring harness and all other accessories.

Subsection 733.04 Method of Measurement (a) is deleted and the following substituted therefore:

(a) Video Detector of the type specified shall be measured by the unit.

Subsection 733.05 Basis of Payment. (a) Video Detector is hereby deleted and the following substituted therefore:

Work completed and accepted under this item and measured as provided above, shall be paid for at the contract unit price bid per each for Video Detector of the type specified which price shall be full compensation for providing and installing the device, wiring and testing, aligning the zones; and shall also be for all labor equipment, tools and incidentals necessary to complete the work.

The following Pay Item Video Detector (CLR) is added to Subsection 733.05 Basis of Payment:

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Detector (CLR)</td>
<td>Each</td>
</tr>
</tbody>
</table>
Description. Work under this item shall consist of improving the bearing capacity of the foundation soils beneath the proposed Mechanically Stabilized Earth (MSE) Wall by installing Aggregate Piers. This item includes but is not limited to providing all equipment, material, labor, supervision, design and related services to accomplish the soil improvement by Aggregate Piers. Work shall consist of designing, furnishing, installing, and testing Aggregate Piers to the lines and grades designated on the plans and as specified herein.

The method of ground improvement used shall be either a rammed pier or vibro-stone column system. If subsurface conditions are such that caving potential and/or high groundwater are anticipated, it is the Contractor’s responsibility to employ an appropriate construction procedure/method to achieve the design bearing capacity with acceptable settlement. Use of casing or slurry to maintain excavation shafts open is not permitted. The term “Aggregate Pier” referenced in this Special Provision refers to both rammed piers and vibro-stone columns. Proprietary products such as the “Rammed Aggregate Pier” by Geopier Foundation Company, Inc., and “Vibro-Pier” by Keller, Inc. are acceptable for use. The Contractor may submit an alternate system for approval.

The Aggregate Piers shall be constructed by installing a predetermined diameter pier and compacting aggregate in the excavated hole using a down-hole vibrator, down-hole tamper, or a displacement mandrel system. The location, diameter, spacing, and depth of Aggregate Piers shown on the plans are used for estimating and bidding purposes only. Aggregate Pier designs for the actual Pier Diameter, Center-to-Center Pier Spacing, Pier depth and number of Piers shall be designed by a Professional Engineer.

Design Parameters. The design of the Aggregate Pier system shall be performed in accordance with industry recognized standards or design methods specific to the installer’s equipment and construction methods. The design of the Aggregate Pier Foundation shall provide the following criteria upon completion:

1. A global stability factor of safety of at least 1.30 for short-term (undrained) and long-term (drained) conditions shall be achieved with Soil Improvement.

2. The aggregate pier design shall be coordinated with the bearing capacity and differential settlement requirement determined by the retaining wall or embankment design engineer, as applicable.

3. The stiffness of the Aggregate Pier shall be determined by the Contractor’s Design Engineer. This value shall be verified by a full-scale modulus test as described in the Inspection and Testing section.
4. Design calculations shall be prepared, stamped, signed, and dated by a Professional Engineer. The design shall include as a minimum, but not limited to; stability calculations, name of computer design and analysis program, recommended pier locations, diameter of each pier, pier spacing, depth of piers, and total number of piers.

5. Project-specific working drawings shall be prepared, stamped, signed, and dated by a Professional Engineer. Working drawing shall include as a minimum, but not limited to; test pier and production pier locations in relation to the proposed MSE wall, diameter of each pier, pier spacing, depth of piers, and total number of piers.

6. The design calculations and working drawings shall be submitted to the Engineer for approval a minimum of 30 days prior to construction of the first pier.

7. Upon completion of the Aggregate Pier system construction and testing, the Design Engineer shall state in writing that the ground improvement system satisfies the design requirements of the plans, contract, and retaining wall. Modifications to the original ground improvement design that are required to meet the design requirements shall be approved by the Department and will be at no cost to the Department.

**Backfill Materials.** The materials utilized in the backfill of each pier shall be aggregates meeting the following requirements:

Aggregate shall either meet the requirements of Coarse Aggregate for Class S Concrete specified in Subsection 802.02(c) or Aggregate Base Course (Class 7) in Section 303 of the Standard Specifications for Highway Construction, Edition of 2014. The Aggregate Pier system designer shall specify where the aggregates described above will be placed. Material placement shall be detailed in the design submittal.

**Equipment and Procedures.** The specialty contractor performing Aggregate Pier installation shall have a minimum of five (5) years of experience designing and installing Aggregate Piers. The Aggregate Pier contractor shall include, in the bid, a list of projects with references that demonstrate a minimum of five (5) years of applicable experience. The Contractor will be required to have personnel experienced and knowledgeable in the design and construction of Aggregate Piers available on-site throughout the construction period.

Specific equipment and procedural specifications are left to the aggregate pier contractor performing the work to achieve the specified performance criteria. However, the following minimum guidelines shall be implemented:

1. The Contractor shall provide the necessary working platform to support equipment for drilling, backfilling, and compacting the Aggregate Piers.

2. The location of each pier shall be staked, verified with the design, and documented for future reference prior to being excavated.

3. Each pier shall be drilled to the required pier diameter. Drilling equipment used to drill holes for aggregate piers shall be capable of drilling through the soils anticipated for this project. If obstructions are encountered that are not anticipated by the borings then these shall be removed utilizing an excavator or other means. Rotary wash or other wet drilling techniques will not be permissible. The final depth of each pier shall be measured and
FOUNDATION IMPROVEMENT – AGGREGATE PIER

documented. Each pier shall remain open and clear throughout the duration of the aggregate compaction procedure. If temporary casing is required, no additional cost will be compensated for its use and shall be included in the contract price bid per each Aggregate Pier.

4. The backfilling and compaction of each pier shall commence immediately after drilling and measuring the pier dimensions. All open piers shall be backfilled and compacted prior to the end of each workday. The Contractor shall be responsible for preventing surface water from damaging and/or entering any opened pier prior to its completion. Any damage and or collapse of a pier shall be corrected and/or re-drilled at the Contractor’s expense.

5. Should the Contractor elect to use a down-hole tamper, the tamper shall have a diameter that is at least 85% of the pre-drilled hole diameter, have beveled sides, and be long enough to reach the full depth of the pre-drilled hole. The tamper shall have a minimum tamper energy CMIA rating of 1200 foot-pounds of force per blow and shall direct downward impact energy to each lift of aggregate. Complete equipment specifications shall be submitted to the Engineer prior to commencement of work.

6. Should the Contractor elect to use a displacement mandrel system, the specially designed mandrel shall have a bottom tamper foot diameter of at least 50% of the column design diameter and be long enough to reach the full column design depth. The tamper foot shall be capable of applying a minimum 15 ton static force augmented by dynamic vertical ramming energy to the full design depth. Complete equipment specifications shall be submitted to the Engineer prior to commencement of work.

7. Should the Contractor elect to use a down-hole vibrator, the vibrator shall be capable of providing at least 70 HP of rated energy and a centrifugal force of 15 tons. An appropriate metering device shall be provided at such a location that inspection of amperage increase may be verified during the operation of the equipment. The metering device may be an ammeter directly indicating performance of the vibrator tip. Complete equipment specifications shall be submitted to the Engineer prior to commencement of work.

Inspection and Testing.

1. A modulus test shall be performed on a non-production test pier to verify the design stiffness of the Aggregate Piers. The test shall be performed as close as practicable to the proposed MSE Wall. The test shall be performed over the length of the proposed pier as approved by the Engineer. Testing shall be performed at a stress level of 150% of the highest design pier stress. The test pier and modulus testing shall not be paid for separately but shall be included in the price bid for each Aggregate Pier.

2. A telltale shall be installed at the bottom of the test pier so that bottom-of-pier deflections may be determined. Acceptable performance is indicated when the bottom of the pier deflection is no more than 20% of the top of pier deflection at the design stress level.

3. Modulus test procedures shall be performed in general accordance with ASTM D-1143 to establish load increments, load increment duration, and load decrements. The results of the modulus test shall show that the modulus at the test location exceeds the minimum modulus required in the design parameters. If the actual modulus value measured does
not meet these parameters, additional test piers shall be constructed to meet the parameters at no additional cost to the Department. Additional modulus tests shall be performed at no additional cost to the Department until the requirements of this document have been met.

4. For the down hole tamper method, penetrometer testing of piers shall be performed on a minimum of five (5) aggregate lifts on the test pier and on at least ten (10) percent of the production piers constructed per day (not less than twice per day) at locations and depth as determined by the Engineer, to verify sufficient energy is being imparted to the stone. In the event that the minimum value of 15 blows is not obtained on a tested aggregate lift, additional penetrometer testing will be required on each subsequent lifts within the tested pier. Five consecutive penetrometer tests (one (1) per lift) shall be performed on the subsequent lifts and shall have a minimum value of 15 blows for each lift to be considered as an acceptable compacted pier. If the minimum requirements are not obtained for the five consecutive lifts, then the pier shall be rejected and reconstructed at no additional cost to the Department. This testing method is not applicable for down-hole vibrator method. Dynamic cone penetrometer testing is not appropriate for open-graded AASHTO M 43 #57 stone. The test pier and penetrometer testing shall not be paid for separately but shall be included in the price bid for each Aggregate Pier.

5. For the down hole tamper method, bottom Stabilization Tests shall be performed after completion of the bottom pier bulb on the test pier and on at least ten (10) percent of the production piers constructed per day (not less than twice per day). The test shall also be performed when a new soil formation is encountered in the construction of the bottom pier bulb. The Bottom Stabilization Tests shall replace the penetrometer testing on production piers using open graded stone such as AASHTO M 43 #57 for the main element of the pier. The energy source may be turned off, and bottom stabilization verification test performed. Bottom Stabilization Tests are performed by placing a reference bar over the cavity, marking the tamper shaft, applying energy to the tamper for an additional 15 seconds, and observing the downward deflection of the tamper shaft by observing the deflection of the mark on the tamper shaft. Acceptable performance is indicated if the vertical movement of the shaft is less than 150% of the vertical movement measured for the modulus test pier. If the measured vertical movement exceeds 150% of the value achieved during the modulus test, added energy shall be applied to re-densify the bulb. The procedure for measure is then repeated. If the movement is still greater than 150% of that achieved during the modulus test and greater than 1/2 inch, a lift of loose aggregate may be placed on top of the compacted aggregate, and the verification test may be performed on this next lift after it is densified. If there is excessive movement on this lift, another lift may be placed and tested. Movement must be limited to below 150% of the values achieved for the modulus test before completion of 2/3 of the pier depth. If this requirement is not obtained, then the pier shall be rejected and reconstructed at no additional cost to the Department. Bottom Stabilization Verification Testing shall not be paid for separately but shall be included in the price bid for each Aggregate Pier.

Submittals.

1. The Contractor shall submit detailed design calculations and a proposed aggregate pier layout to the Engineer for approval at least 30 days prior to the start of construction.
2. Daily Progress Reports – The Aggregate Pier contractor shall furnish a complete and accurate record of installation to the General Contractor and the Engineer. The Aggregate Pier daily log shall include recording of pier number, start/finish time of pier, depth of pier, average lift thickness, final elevations of the base and top of aggregate piers, approximate backfill quantities, and results of dynamic cone penetrometer test and bottom stabilization tests performed. Both records shall also indicate the type and size of the densification equipment used.

3. Test Data - The Aggregate Pier contractor shall furnish the General Contractor and the Engineer with a description of the installation equipment, installation records, complete test data and recommended design parameter values based on the modulus load test results. The report shall be prepared under supervision of a Professional Engineer.

4. The Aggregate Pier contractor shall immediately report any unusual conditions encountered during installation to the General Contractor and to the Engineer. Any change in the predetermined foundation improvement program necessitated by a change in the subsurface conditions shall be immediately reported and submitted to the General Contractor and the Engineer.

5. Aggregate Pier modulus load test details and setup shall be furnished to the General Contractor and the Engineer at least one (1) week prior to the start of the test.

Quality Control/Quality Assurance. (a) Quality Control. The Aggregate Pier contractor shall have a full-time Quality Control (QC) representative to verify and report all QC installation procedures. The Aggregate Pier contractor shall immediately report any unusual conditions encountered during installation to the Engineer, the General Contractor, and the Testing Agency. The QC procedures shall include the preparation of Progress Reports completed during each day of installation and containing the following information:

- Aggregate Pier locations.
- Aggregate Pier length and drilled diameter.
- Planned and actual elevations at the top and bottom of the element.
- Average lift thickness for each Aggregate Pier element.
- Soil types encountered at the bottom of the Aggregate Pier.
- Depth to groundwater, if encountered.
- Documentation of any unusual conditions encountered.
- Type and size of densification equipment used.

(b) Quality Assurance. The General Contractor is responsible for retaining an independent engineering testing firm to provide Quality Assurance services.

- The Testing Agency shall monitor the Aggregate Pier Contractor test(s). The Aggregate Pier Contractor shall provide and install all dial indicators and other measuring devices.
The Testing Agency shall monitor the installation of the Aggregate Pier elements to verify that the production installation practices are similar to those used during the installation of the test elements.

The Testing Agency shall perform Dynamic Cone Penetrometer tests as described herein.

The Testing Agency shall report any discrepancies to the Engineer, Aggregate Pier Contractor and General Contractor immediately.

Method of Measurement. Aggregate Piers will be measured by square yard of top surface area of ground improvement. Measurements will be made along the outside edge of the outermost row of aggregate piers.

Basis of Payment. Aggregate Piers completed and accepted and measured as provided above will be paid for at the contract unit price bid for “Aggregate Pier” which price shall be full compensation for providing design; for determining pier locations and surface elevations; for drilling, installing temporary casing, constructing working platform; for backfilling and compacting; for quality control and acceptance sampling and testing; for test pier(s); for performing dynamic cone penetrometer testing; for performing modulus testing; bottom stabilization verification testing; for furnishing all materials including aggregates; for disposing of any excess waste material; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate Pier</td>
<td>Square Yard</td>
</tr>
</tbody>
</table>
DESCRIPTION: This work consists of designing and constructing permanent soil nail retaining wall at the location and elevation as shown on the plans. The Contractor shall furnish all labor, plans, drawings, design calculations and all other material and equipment required to design and construct the soil nail wall as shown on the plans and as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The work shall include excavating in staged lifts in accordance with the approved Contractor’s plan; detailing the drilling of the soil nail drill holes to the diameter and length required to develop the specified capacity; grouting the nails; providing and installing the specified drainage features; providing and installing bearing plates, washers, nuts, and other required miscellaneous materials; and constructing the Pneumatically Placed Concrete (Shotcrete) temporary facing, and constructing the final structural facing.

PREQUALIFICATION OF SOIL NAIL WALL CONTRACTOR: The Contractor or subcontractor responsible for the work covered under this provision, the Soil nail wall contactor, must have a minimum of five (5) years’ experience in soil nail installation including at least five (5) projects similar in nature and scope to this project and shall provide satisfactory evidence of experience. A brief description of each project including the location, start and completion dates, and a reference shall be included for each project listed. As a minimum, the reference shall include an individual's name, affiliation with the project, and current phone number. Also, the Engineer responsible for designing the soil nail wall must have a minimum of five (5) years’ experience in soil nail design including at least five (5) projects similar in nature and scope to this project and shall provide satisfactory evidence of experience. The Engineer must be licensed in the state of Arkansas as Professional Engineer.

In addition, the onsite supervisors for both the soil nail and shotcrete installation, drill rig operators, shotcrete nozzle operators and testing supervisors assigned to this project by the Soil nail wall contactor must have experience in that position on a minimum of three (3) projects within the last three (3) years which are similar in nature to this project. The personnel list shall contain a summary of each individual's experience and contain enough information for the Engineer to assess the individual's qualifications. Requirements for technician certification and laboratory qualifications need to be satisfied according to the Department’s Manual of Field Sampling and Testing Procedures.

This information shall be submitted 60 calendar days prior to start of any soil nail construction, and the Engineer shall approve or reject the Soil nail wall contactor and personnel list within 15 calendar days of receipt of the complete submittal. All costs associated with incomplete or unacceptable submittals shall be borne by the Contractor, and no adjustment in Contract Time shall result. Any changes to previously approved subcontractors or personnel must be in writing and shall include the required information for verification of qualifications. The Engineer may suspend work if the Contractor utilizes non-approved personnel in the listed positions. All costs associated
SOIL NAIL WALL

with the uses of non-approved personnel shall be borne by the Contractor, and no adjustment in Contract Time shall result from the suspension.

SOIL NAIL WALL DESIGN REQUIREMENTS

Design the soil nail walls including the final structural facing using the Allowable Stress Design (ASD) method, also known as Service Load Method (SLD), as outlined in FHWA Geotechnical Engineering Circular No. 7 “Soil Nail Walls”. Provide minimum recommended factor of safety as listed in section 5.9 and Class I corrosion protection requirements according to the Appendix C of the circular. Also list or show the design shear strength parameters, seismic design coefficient, type of wall facing, easements, and right-of-ways on the working drawings.

SUBMITTALS:

A. The Contractor is responsible for providing the necessary geotechnical investigation if available geotechnical information is not adequate for design. The investigation shall provide sampling and testing information for design requirements.

B. The Contractor is responsible for providing the necessary survey and alignment control during the excavation for each lift, locating drill holes and verifying limits of wall installation. Contractor shall submit complete design calculations and working drawings to the Engineer for review and approval at least 60 calendar days before starting soil nail work. Include all details, dimensions, quantities, ground profiles and cross-sections necessary to construct the wall. Verify the limits of the wall and ground survey data before preparing the drawings. The drawings and calculations shall be signed and sealed by a Professional Engineer registered in the State of Arkansas. The submittal shall include the following:

1. The start date and proposed detailed wall construction sequence.
2. Soil/rock design shear strength parameters and external surcharge loads used in the design.
3. Corrosion protections.
4. Drilling and grouting methods and equipment, including the drill hole diameter, soil nail length, proposed to meet the performance requirements specified herein and any variation of these along the wall alignment. Include casing methods if their use is anticipated.
5. Nail grout mix design, including compressive strength test results (per AASHTO T106/ASTM C109) supplied by a qualified independent testing lab verifying the specified minimum 3-day and 28-day grout compressive strengths. Previous test results for the same grout mix completed within one year of the start of grouting may be submitted for verification of the required compressive strengths.
6. Nail grout placement procedures and equipment.
7. Soil nail testing methods and equipment setup.
8. Identification number and certified calibration records for each test jack and pressure gauge and load cell to be used. Jack and pressure gauge shall be calibrated as a unit. Calibration records shall include the date tested, the device identification number, and the calibration test results and shall be certified for an accuracy of at least 2 percent of the applied certification loads by a qualified independent testing laboratory within 90 days prior to submittal.
9. Design calculations, detail drawings and quantities for final structural facing.
SOIL NAIL WALL

10. Manufacturer Certificates of Compliance for the soil nail ultimate strength, nail bar steel, nuts, bolts, washers, Portland cement, centralizers, bearing plates, epoxy coating, encapsulation and any other materials used in the soil nail wall.

11. Description of proposed equipment for mixing and applying shotcrete. Include the manufacturer instructions, recommendations, literature, performance, and test data.

12. Proposed shotcrete mix design with mix proportions.

13. Representative samples of shotcrete material, if requested by the Engineer.

14. Results of all shotcrete preconstruction testing.

15. Proposed method for applying and curing shotcrete.

16. Other information necessary to verify compliance with ACI 506.2 for shotcrete installation.

17. Certification that shotcrete conforms to the standards specified herein.

18. Fiber samples, if used, with supplier or manufacturer recommendations for use.

C. The Engineer shall approve or reject the Contractor’s working drawings within 30 working days after the submission. Approval of the Construction Plan does not relieve the Contractor of his responsibility for the successful completion of the work.

PRE-CONSTRUCTION MEETING: A pre-construction meeting shall be scheduled by the Engineer to be held after receipt of the complete soil nail working drawings and Soil nail wall contractor, the soil nail design engineer qualification submittals. The Engineer; the Contractor, including their Superintendent; the Soil nail wall contractor, including the listed onsite supervisor; and the engineer who designed the soil nails shall attend. Attendance is mandatory. All other parties to be involved with the design, fabrication, construction, stressing, or testing the soil nail components may be represented. The meeting will be conducted to clarify the requirements of the work, to coordinate the construction schedule and activities, and to identify the contractual relationships and the delineation of responsibilities amongst the parties involved.

FINAL SUBMITTAL: Within 30 days after completion of work covered by these provisions; the Contractor shall submit revised as-built drawings and information documenting all changes to the soil nails during construction. The revised soil nail schedule shall include the as-built soil nail length. All design calculations, material test results, material certifications, not previously submitted shall also be included.

MATERIALS: Materials used shall conform to designated specifications and be within their manufacturers’ design range of use for this application. All materials should be from QPL list or are subject to acceptance/verification testing per the Manual of Field Sampling and Testing Procedures. Materials delivered to the site shall be new and without defect and shall be handled and stored in accordance with their manufacturers' recommendations and in a manner that no damage to the components due to movement or exposure to the elements occurs. Unacceptable, defective, or damaged materials shall be removed from the site and replaced with new at no additional cost to the Department.

A. Soil Nails

1. Nail Solid Bar. AASHTO M31/ASTM A615, Grade 420 (60) or 520 (75), ASTM A 722 for Grade 1035 (150). Deformed bar, continuous without splices or welds, new, straight, undamaged, bare, or epoxy-coated, or encapsulated as shown on the working drawings. Threaded, a minimum of 150 mm (6 in.) on the wall anchorage end, to allow proper
SOIL NAIL WALL

attachment of bearing plate and nut. Threading may be continuous spiral deformed ribbing provided by the bar deformations (continuous thread bars) or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, provide the next-larger bar number designation from that is shown on the working drawings, at no additional cost. The use of self-drilling nail bars (also known as hollow, self-grouting or pressure-grouted nail bars) will not be allowed.

2. Bar Coupler. Bar couplers shall develop the full ultimate tensile strength of the bar as certified by the manufacturer.

3. Fusion Bonded Epoxy Coating. AASHTO M284, ASTM A 775. Minimum 0.4 mm (0.016 in.) thickness electrostatically applied. Bend test requirements are waived. Coating at the wall anchorage end of epoxy-coated bars may be omitted over the length provided for threading the nut against the bearing plate.

4. Encapsulation. Minimum 1-mm (0.04-in.) thick, corrugated, HDPE tube conforming to AASHTO M252 or corrugated PVC tube conforming to ASTM D1784, Class 13464-B.

B. Soil Nail Appurtenances

1. Centralizer. Manufactured from Schedule 40 PVC pipe or tube, steel, or other material not detrimental to the nail steel (wood shall not be used); securely attached to the nail bar; sized to position the nail bar within 25 mm (1 in.) of the center of the drill hole; sized to allow tremie pipe insertion to the bottom of the drill hole; and sized to allow grout to freely flow up the drill hole.

2. Nail Grout. Neat cement or sand/cement mixture with a minimum 3-day compressive strength of 10.5 MPa (1,500 psi) and a minimum 28-day compressive strength of 21 MPa (3,000 psi), per AASHTO T106/ASTM C109.

3. Fine Aggregate shall conform to the applicable requirements of Subsection 802.02b of the Standard Specifications for Highway Construction.

4. Portland Cement. shall conform to the applicable requirements of Subsection 802.02a of the Standard Specifications for Highway Construction.

5. Admixtures. shall conform the applicable requirements of Subsection 802.02e of the Standard Specifications for Highway Construction. Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout subject to review and acceptance by the Engineer. Accelerators are not permitted. Expansive admixtures may only be used in grout used for filling sealed encapsulations. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer’s recommendations.

6. Film Protection. Polyethylene film per ASTM C171-03.

C. Bearing Plates, Nuts, and Welded Stud Shear Connectors.


2. Nuts. ASTM A563, grade B, hexagonal, fitted with beveled washer or spherical seat to provide uniform bearing.


D. Welded Wire Fabric. AASHTO M55/ASTM A185 or A497.

E. Geocomposite Sheet Drain. Refer to the Department’s Qualified Product List (QPL) for approved drainage systems or approved equal.

F. Underdrain and Perforated Pipe. Design according to Standard Specification Section 611
SOIL NAIL WALL

and Standard drawing no. PU-1.

G. Shotcrete. Submit for approval, all materials, methods, and control procedures for this work according to this special provision.

A. Use standard specification items for the following:
   1. Air-entraining admixture (wet mix only)
   2. Chemical admixtures (wet mix only)
   3. Concrete coloring agents
   4. Curing material
   5. Hydraulic cement
   6. Pozzolans
   7. Reinforcing steel

B. Shotcrete Aggregate
   Fine aggregate shall conform to the applicable sections of Standard Specification Section 802.02(b).

H. Reinforcing Steel. Submit all order lists and bending diagrams, fabricate reinforcing steel, ship and protect material, place, fasten, and splice reinforcing steel according to Standard Specification Section 804.

I. Structural Concrete. Design concrete mixture, store, handle, batch, and mix material and deliver concrete, provide quality control, and construct concrete facing according to Standard Specification Section 802. Use class “S” concrete for concrete facing with a 28 day compressive strength of 3500 psi.

J. Concrete Facing Panels.
   The reinforced concrete facing panels shall be rectangular or square in shape, fabricated in accordance with Subsection 802.21 and Section 804. The materials shall meet the requirements of Subsections 802.02 and 804.02 with the following additions and modifications:
   1. The Contractor shall submit his concrete mix design to the Resident Engineer for approval. The Portland cement concrete shall have a minimum 4000 psi compressive strength at 28 days; with a minimum cement factor of 6 bags per cubic yard, an air content of 6% ± 2%, and a maximum aggregate size of 1 inch.
   2. The units shall be fully supported by the forms until the concrete reaches a minimum compressive strength of 2500 psi as evidenced by test cylinders cured in the same manner as the panels and tested in accordance with AASHTO T 22.
   3. All units shall be handled, stored, and shipped in such a manner as to eliminate the dangers of chipping, discoloration, cracks, fractures, and excessive bending stresses. Stored panels shall be supported in firm blocking to protect the panel connection devices and the exterior finish.
   4. Panel connection devices shall be positioned within a tolerance of 1 inch. Panel squareness, as determined by the difference between the two diagonals, shall not exceed 0.5 inch.
   5. Units shall be rejected because of failure to meet any of the requirements specified above. In addition, any or all of the following shall be sufficient cause for rejection:
      • Imperfections.
      • Honeycombing or open texture concrete.
      • Cracked or severely chipped panels.
      • Color variation on front face of panel due to excess form oil or other causes.
SOIL NAIL WALL

6. The manufacturer shall have a Quality Control program whereby representative samples of raw materials (cement, aggregates, reinforcement) are tested and/or reviewed for conformity to specifications. In addition, quality control tests (slump, air content, concrete temperature, compressive strength, and gradations, as applicable) shall be conducted by the manufacturer during casting operations. Quality control tests shall be conducted in accordance with the AASHTO Testing Procedures. The frequency of quality control tests shall be a minimum of one (1) set of tests per pouring day for each type product (panels or coping).

Records of materials used in the manufacture of reinforced concrete facing panels and quality control tests shall be maintained by the manufacturer. The Department shall reserve the right to review records for compliance with all applicable specifications and to reject any non-conforming units. Reinforced concrete facing panels shall not be shipped nor incorporated into the job until all testing has been completed. Copies of the manufacturer’s quality control and inspection records shall be provided to the Engineer upon request.

The Department shall reserve the right to observe all manufacturing processes and conduct random quality assurance tests to determine compliance. If deemed necessary, drilled cores shall be taken at the direction of the Engineer to verify the compressive strength.

All reinforced concrete facing panels manufactured for use on Department projects shall be legibly marked on their back side with the cast date and a distinct identification number.

7. The manufacturer shall furnish a Certificate of Delivery for each shipment stating that the listed products conform to all applicable specifications. The information on the Certificate of Delivery shall include the state job number (or state purchase order number), consignee, destination, number of pieces, cast dates, identification numbers, and plant of origin. One copy of the Certificate of Delivery and shipping papers shall be furnished to the Engineer.

K. Architectural Finish – Fractured Fin.

Precast concrete facing panels shall receive a Fractured Fin architectural finish. The Fractured Fin pattern shall have ridges approximately 1” deep. Before production of the precast concrete panels may begin, approval of the architectural finish will be required. Approval will be based on a sample panel with approximate dimensions of 6 feet by 6 feet. In lieu of a sample panel, the Engineer may accept proof of previous work performed with similar size panels and finishes. Prior to construction of any panels, a work plan showing the materials, construction methods, name and pattern number of form liner manufacturer, and other features affecting the finish shall be submitted to and approved by the Engineer. All panels shall be constructed according to the approved plan.

L. Coping.

Concrete for coping shall comply with the requirements of Section 802 for Class S(AE)
SOIL NAIL WALL

Concrete. Reinforcing steel shall comply with the requirements of Section 804. Unless otherwise noted in the plans, the exposed surfaces of the coping on the top of the wall shall receive a Class 2 Rubbed Finish in accordance with Subsection 802.19.

STORAGE AND HANDLING

Store and handle soil nail bars in a manner to avoid damage or corrosion. Replace bars exhibiting abrasions, cuts, welds, weld splatter, corrosion, or pitting. Repair or replace any bars exhibiting damage to encapsulation or epoxy coating. Repaired epoxy coating areas shall have a minimum 0.012-in. thick coating.

EXCAVATION

A. The height of exposed unsupported final excavation face cut shall not exceed the vertical nail spacing plus the required reinforcing lap or the short-term stand-up height of the ground, whichever is less. Complete excavation to the final wall excavation line and apply shotcrete in the same work shift, unless otherwise approved by the Engineer. Application of the shotcrete may be delayed up to 24 hours if the contractor can demonstrate that the delay will not adversely affect the excavation face stability.

B. Excavation of the next-lower lift shall not proceed until nail installation, reinforced shotcrete placement, attachment of bearing plates and nuts, and nail testing have been completed and accepted in the current lift. Nail grout and shotcrete shall have cured for at least 72 hours or attained at least their specified 3-day compressive strength before excavating the next underlying lift.

NAIL INSTALLATION

A. Provide nail length and drill hole diameter necessary to develop the load capacity to satisfy the acceptance criteria for the design load required, but not less than the lengths shown in the working drawings. Drill holes for the soil nails at the locations, elevations, orientations, and lengths shown on the working drawings. Select drilling equipment and methods suitable for the ground conditions and in accordance with the approved installation methods submitted by the Contractor. The use of drilling muds or other fluids to remove cuttings will not be allowed. If caving ground is encountered, use approved cased drilling methods to support the sides of the drill holes. Provide nail bars as shown in the working drawings. Provide centralizers sized to position the bar within 1 in. of the center of the drill hole. Position centralizers as shown on the Plans so that their maximum center-to-center spacing does not exceed 8 ft. Also locate centralizers within 1.5 ft from the top and bottom of the drill hole.

GROUTING

A. Grout the drill hole after installation of the nail bar and within 2 hours of completion of drilling. Inject the grout at the lowest point of each drill hole through a grout tube or casing. Keep the outlet end of the conduit delivering grout below the surface of the grout as the conduit is withdrawn to prevent the creation of voids. Completely fill the drill hole in one continuous
SOIL NAIL WALL

operation. Cold joints in the grout column are not allowed except at the top of the test bond length of proof tested production nails.

B. Test nail grout according to AASHTO T106/ASTM C109 at a frequency of one test per mix design and a minimum of one test for every 50 cy of grout placed. Provide grout cube test results to the Engineer within 24 hours of testing. Grout testing shall be conducted by a lab already preapproved by Materials division for conducting these types of testing.

NAIL TESTING

A. Perform both verification and proof testing of designated test nails. Perform verification tests on sacrificial test nails at locations shown on the working drawings. Perform proof tests on production nails at locations selected by the Engineer. Testing of any nail shall not be performed until the nail grout and shotcrete facing have cured for at least 72 hours or attained at least their specified 3-day compressive strength.

B. Testing equipment shall include 2 dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, and a reaction frame. The testing setup and equipment shall need to be preapproved thru the submittal process. The pressure gauge shall be graduated in 75 psi increments or less. Measure the nail head movement with a minimum of 2 dial gauges capable of measuring to 0.001 in.

VERIFICATION TESTING OF SACRIFICIAL NAILS

A. Perform verification testing prior to installation of production nails to confirm the appropriateness of the Contractor’s drilling and installation methods, and verify the required nail pullout resistance.

B. Verification test nails shall have both bonded and unbonded lengths. Along the unbonded length, the nail bar is not grouted. The unbonded length of the test nails shall be at least 3 ft. The bonded length of the soil nail during verification tests, LBVT, shall be at least 10 ft but not longer than a maximum length, LBVT max, such that the nail load does not exceed 90 percent of the nail bar tensile allowable load during the verification test. Therefore, the following requirements shall be met:

\[
L_{BVT} \leq \begin{cases} 
10 \text{ft} \\
L_{BVT \text{max}} 
\end{cases}
\]

The length \(L_{BVT \text{max}}\) is defined as:

\[
L_{BVT \text{max}} = \frac{C_{RT} \times A_i \times f_Y}{Q_{ALL} \times F_{STver}}
\]

where,

\(C_{RT}\) = Reduction coefficient. Use \(C_{RT} = 0.9\) for Grade 60 and 75 bars.

If Grade 150 bars are allowed in the job, use \(C_{RT} = 0.8\).

\(A_i\) = Nail bar cross-sectional area;

\(f_Y\) = Nail bar yield tensile strength;
SOIL NAIL WALL

Q_{ALL} = \text{Allowable pullout resistance per unit length (Q_{ALL} = Q_u/FS_p), as specified in working drawings; and}

F_{S_{T_{ver}}} = \text{Factor of safety against tensile failure during verification tests (use 2.5 or, preferably, 3).}

The maximum bonded length shall be preferably based on production nail maximum bar grade. Provide larger bar sizes, if required, to meet the 10-ft minimum test bonded length requirement at no additional cost.

The Design Test Load (DTL) shall be determined as follows:

\[ \text{DTL} = \text{LBVT} \times Q_{ALL} \]

DTL shall be calculated based on as-built bonded lengths

C. Perform verification tests by incrementally loading the verification test nails to failure or a maximum test load of 300 percent of the DTL in accordance with the following loading schedule. Record the soil nail movements at each load increment.

Verification of Test Loading Schedule

<table>
<thead>
<tr>
<th>Load</th>
<th>Hold Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05 DTL max. (AL)</td>
<td>1 minute</td>
</tr>
<tr>
<td>0.25 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>0.50 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>0.75 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>1.00 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>1.25 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>1.50 DTL (Creep Test)</td>
<td>60 minutes</td>
</tr>
<tr>
<td>1.75 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>2.00 DTL</td>
<td>10 minutes</td>
</tr>
<tr>
<td>2.50 DTL</td>
<td>10 minutes max.</td>
</tr>
<tr>
<td>3.0 DTL or Failure</td>
<td>10 minutes max.</td>
</tr>
<tr>
<td>0.05 DTL max. (AL)</td>
<td>1 minute (record permanent set)</td>
</tr>
</tbody>
</table>

The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the DTL. Dial gauges should be set to “zero” after the alignment load has been applied. Following application of the maximum load (3.0 DTL) reduce the load to the alignment load (0.05 DTL maximum) and record the permanent set.

D. Hold each load increment for at least 10 minutes. Monitor the verification test nail for creep at the 1.50 DTL load increment. Measure and record nail movements during the creep portion of the test in increments of 1 minute, 2, 3, 5, 6, 10, 20, 30, 50, and 60 minutes. Maintain the load during the creep test within 2 percent of the intended load by use of the load cell.

PROOF TESTING OF PRODUCTION NAILS
SOIL NAIL WALL

A. Perform successful proof testing on 5 percent of the production soil nails in each nail row or a minimum of 1 per row. The Engineer shall determine the locations and number of proof tests prior to nail installation in each row. Production proof test nails shall have both bonded and temporary unbonded lengths. The temporary unbonded length of the test nail shall be at least 3 ft. The bonded length of the soil nail during proof production tests, \( L_{PBPT} \), shall be the least of 10 ft and a maximum length, \( L_{PBPT\,\text{max}} \), such that the nail load does not exceed 90 percent of an allowable value of the nail bar tensile load during the proof production test. Therefore, the following requirements shall be met:

\[
L_{PBPT} \leq \begin{cases} 3\text{m (10ft)} \\ L_{PBPT\,\text{max}} \end{cases}
\]

The length \( L_{PBPT\,\text{max}} \) is defined as:

\[
L_{PBPT\,\text{max}} = \frac{C_{RT} \times A_t \times f_Y}{Q_{\text{ALL}} \times FS_{\text{tproof}}}
\]

\( C_{RT} \) = Reduction coefficient. Use 0.9 for Grade 60 and 75 bars.

*If Grade 150 bars are allowed in the job, use \( C_{RT} = 0.8 \);

\( A_t \) = Nail bar cross-sectional area;

\( f_Y \) = Nail bar yield tensile strength;

\( Q_{\text{ALL}} \) = Allowable pullout resistance per unit length (\( Q_{\text{ALL}} = Q_u/FS_p \)), as specified in working drawings; and

\( FS_{\text{tproof}} \) = Factor of safety against tensile failure during proof production tests (use 1.5).

The maximum bonded length shall be based on production nail maximum bar grade.

Production proof test nails shorter than 12 ft in length may be constructed with less than the minimum 10-ft bond length.

The Design Test Load (DTL) shall be determined as follows:

\[
\text{DTL} = L_{PBPT} \times Q_{\text{ALL}}
\]

DTL shall be calculated based on as-built bonded lengths.

B. Perform proof tests by incrementally loading the proof test nail to 150 percent of the DTL in accordance with the following loading schedule. Record the soil nail movements at each load increment.

**Proof Test Loading Schedule.**

The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the DTL. Dial gauges should be set to “zero” after the alignment load has been applied.

B. The creep period shall start as soon as the maximum test load (1.50 DTL) is applied and the nail movement shall be measured and recorded at 1 minute, 2, 3, 5, 6, and 10 minutes.
SOIL NAIL WALL

Where the nail movement between 1 minute and 10 minutes exceeds 0.04 in., maintain the maximum test load for an additional 50 minutes and record movements at 20 minutes, 30, 50, and 60 minutes. Maintain all load increments within 5 percent of the intended load.

<table>
<thead>
<tr>
<th>Load</th>
<th>Hold Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05 DTL max. (AL)</td>
<td>Until Movement Stabilizes</td>
</tr>
<tr>
<td>0.25 DTL</td>
<td>Until Movement Stabilizes</td>
</tr>
<tr>
<td>0.50 DTL</td>
<td>Until Movement Stabilizes</td>
</tr>
<tr>
<td>0.75 DTL</td>
<td>Until Movement Stabilizes</td>
</tr>
<tr>
<td>1.00 DTL</td>
<td>Until Movement Stabilizes</td>
</tr>
<tr>
<td>1.25 DTL</td>
<td>Until Movement Stabilizes</td>
</tr>
<tr>
<td>1.50 DTL (Max. Test Load)</td>
<td>Creep Test (see below)</td>
</tr>
</tbody>
</table>

TEST NAIL ACCEPTANCE CRITERIA

A. A test nail shall be considered acceptable when all of the following criteria are met:

1. For verification tests, the total creep movement is less than 0.08 in. between the 6- and 60-minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.
2. For proof tests, the total creep movement is less than 0.04 in. during the 10-minute readings or the total creep movement is less than 2 mm 0.08 in. during the 60-minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.
3. For verification and proof tests, the total measured movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the test nail unbonded length.
4. A pullout failure does not occur at 3.0 DTL under verification testing and 1.5 DTL test load under proof testing. Pullout failure is defined as the inability to further increase the test load while there is continued pullout movement of the test nail. Record the pullout failure load as part of the test data.

B. Maintaining stability of the temporary unbonded test length for subsequent grouting is the Contractor’s responsibility. If the unbonded test length of production proof test nails cannot be satisfactorily grouted subsequent to testing; the proof test nail shall become sacrificial and shall be replaced with an additional production nail installed at no additional cost to the owner.

TEST NAIL REJECTION

If a test nail does not satisfy the acceptance criterion:

1. For verification test nails, the Engineer will evaluate the results of each verification test. Installation methods that do not satisfy the nail testing requirements shall be rejected. The Contractor shall propose alternative methods and install replacement verification test nails.
SOIL NAIL WALL

Replacement test nails shall be installed and tested at no additional cost.

2. For proof test nails, the Engineer may require the Contractor to replace some or all of the installed production nails between a failed proof test nail and the adjacent passing proof test nail. Alternatively, the Engineer may require the installation and testing of additional proof test nails to verify that adjacent previously installed production nails have sufficient load carrying capacity. Installation and testing of additional proof test nails or installation of additional or modified nails as a result of proof test nail failure(s) will be at no additional cost.

WALL DRAINAGE NETWORK

Install and secure all elements of the wall drainage network as shown on the working drawings. The drainage network shall consist of installing geocomposite drain strips, PVC connection pipes, and wall footing drains as shown in the working drawing drawings.

Exclusive of the wall footing drains, all elements of the drainage network shall be installed prior to shotcreting.

1. Geocomposite Drain Strips. Install geocomposite drain strips centered between the columns of nails as shown on the Plans. The drain strips shall be at least 24 in. wide and placed with the geotextile side against the ground. Secure the strips to the excavation face and prevent shotcrete from contaminating the geotextile. Drain strips will be vertically continuous. Make splices with a 12 in. minimum overlap such that the flow of water is not impeded. Install drain plate and connector pipe at base of each strip. Repair damage to the geocomposite drain strip, which may interrupt the flow of water.

2. Footing Drains. Install footing drains at the bottom of each wall as shown on the working drawings. The drainage geotextile shall envelope the footing drain aggregate and pipe and conform to the dimensions of the trench. Overlap the drainage geotextile on top of the drainage aggregate as shown on the Plans. Replace or repair damaged or defective drainage geotextile.

SHOTCRETE FACING

A. Provide construction shotcrete facing in accordance with this special provision. Where shotcrete is used to complete the top ungrouted zone of the nail drill hole near the face, position the nozzle into the mouth of the drill hole to completely fill the void.

1. Final Face Finish. Shotcrete finish shall be either an undisturbed gun finish as applied from the nozzle or a rod, broom, wood float, rubber float, steel trowel or rough screeded finish as shown on the working drawings.

2. Attachment of Nail Head Bearing Plate and Nut. Attach a bearing plate, washers, and nut to each nail head as shown on the working drawings. While the shotcrete construction facing is still plastic and before its initial set, uniformly seat the plate on the shotcrete by hand-wrench tightening the nut. Where uniform contact between the plate and the shotcrete cannot be provided, set the plate in a bed of grout. After grout has set for 24 hours, hand-wrench tighten the nut. Ensure bearing plates with headed studs are located within the tolerances shown on the working drawings.

3. Shotcrete Facing Tolerances. Construction tolerances for the shotcrete facing from plan location and plan dimensions are as follows:
SOIL NAIL WALL

Horizontal location of welded wire mesh; reinforcing bars, and headed studs: 0.4 in.
Location of headed studs on bearing plate: ¼ in.
Spacing between reinforcing bars: 1 in.
Reinforcing lap, from specified dimension: 1 in.
Complete thickness of shotcrete:
If troweled or screeded: 0.6 in.
If left as shot: 1.2 in.
Planeness of finish face surface-gap under 3-m (10-ft) straightedge:
If troweled or screeded: 0.6 in.
If left as shot: 1.2 in.
Nail head bearing plate deviation from parallel to wall face: 10 degrees

SHOTCRETE REINFORCING FIBERS

A. Contractor may elect to use reinforcing deformed steel or fibrillated polypropylene fibers conforming to ASTM C 1116. The use of reinforcing fibers shall be pre-approved by the Engineer.

SHOTCRETE CONSTRUCTION

GENERAL

A. Conform to the following:
1. ACI 506R Guide to Shotcrete.
3. ACI 506.2 Specifications for Proportioning Application of Shotcrete.
4. AASHTO C 311 Method for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Concrete.
5. Requirements for technician certification and laboratory qualifications are contained in the Department’s Manual of Field Sampling and Testing Procedures.

SHOTCRETE EQUIPMENT

A. Water Supply System. For dry mix, provide a water storage tank at the job site. Provide a positive displacement pump with a regulating valve that is accurately controlled to provide water in the pressures and volumes recommended by the delivery machine manufacturer.
B. Mixing. Use equipment capable of handling and applying shotcrete containing the specified maximum size aggregate and admixtures. Provide an air hose and blowpipe to clear dust and rebound during shotcrete application.
C. Air Supply System. Use an air supply system capable of supplying the delivery machine and hose with air at the pressures and volumes recommended by the machine manufacturer. Do not use air supply systems that deliver oil-contaminated air or are incapable of maintaining constant pressure.
D. Delivery Machine. Use a delivery machine capable of supplying material to the delivery hose at a uniform rate. The ejection from the nozzle must adhere to the treated surface with
SOIL NAIL WALL

minimum rebound and maximum density when the nozzle is held in the range of 3 to 6 ft from the target surface.

SHOTCRETE COMPOSITION (SHOTCRETE MIX DESIGN)

A. Design and produce shotcrete mixtures conforming to Table 1 for the type of shotcrete specified. Use the amount of water required to produce shotcrete of suitable strength, consistency, quality, and uniformity with the minimum amount of rebound. Use the same material types and sources as submitted with the mix design in the field trials and production work.

1. Fibers. If fibers are required, add them to the mix in the proportions recommended by the manufacturer.
2. Hydration stabilizing admixtures. Hydration stabilizing admixtures may be used to extend the allowable delivery time for shotcrete. Dosage is based on the time needed to delay the initial set of the shotcrete for delivery and discharge on the job. Design shall include discharge time limit in the dosage submittal. Dosage required to stabilize shotcrete shall be determined using job site material and field trial mixtures. The extended-set admixture shall control the hydration of all cement minerals and gypsum. The maximum allowable design discharge time is 3.50 hours.
3. If a hydration-stabilizing admixture is approved for use in the concrete mix, concrete shall be delivered and placed within the approved design discharge time limit. An approved and compatible hydration activator may be used at the discharge site to insure proper placement and testing.
4. Dosage and type of extended-set admixture shall be included with proposed mix design. When requested, the admixture manufacturer shall provide the service of a qualified person to assist in establishing the proper dose of extended-set admixture and make dosage adjustments required to meet changing job site conditions.

Table 1: Composition of Shotcrete

<table>
<thead>
<tr>
<th>Type of Shotcrete Process</th>
<th>Minimum Cement Content (kg/m3)</th>
<th>Maximum W/C(1) Ratio</th>
<th>Air Content Range (%)</th>
<th>Minimum 28-Day Compressive Strength(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>325</td>
<td>0.55</td>
<td>NA</td>
<td>28</td>
</tr>
<tr>
<td>Dry</td>
<td>325</td>
<td>0.50</td>
<td>NA</td>
<td>28</td>
</tr>
<tr>
<td>Wet (w/EA)</td>
<td>325</td>
<td>0.45</td>
<td>5 min</td>
<td>28</td>
</tr>
<tr>
<td>Dry (w/EA)</td>
<td>325</td>
<td>0.45</td>
<td>5 min.</td>
<td>28</td>
</tr>
</tbody>
</table>

Notes:
(1) \(W/C = \text{Water/Cement (by weight)}\).
(2) \(EA = \text{Entrained Air}\).
(3) According to AASHTO T 22.

SHOTCRETE PRECONSTRUCTION TESTING
SOIL NAIL WALL

Conduct preconstruction shotcrete field trials before starting shotcrete production. Allow the Engineer the opportunity to witness all phases of the preconstruction testing.

1. Field Trials: Construct wood forms at least 6-in. thick by 3 ft by 3 ft in size. Have each proposed nozzle operator make test panels on two vertical wood forms. Cure the test panels according to AASHTO T 23, without immersing the panels.

2. Coring: Drill six 3-in. diameter cores from each test panel according to AASHTO T 24. Trim the ends of the cores according to AASHTO T 24 to make cylinders at least 3-in. long.

3. Compressive Strength Testing: Soak the cylinders in water for 40 hours immediately before testing. Test three cylinders from each test panel three days after field trial and test the remaining three cylinders 28 days after the field trial. Perform tests according to AASHTO T 22. All specified strength requirements shall be satisfied before the shotcrete mix design will be considered for acceptance.

4. Mix Design Acceptance: The Engineer will accept or reject the shotcrete mix design based on the results of the preconstruction field trials and testing. Before approving any changes to a previously accepted mix design, the Engineer may require additional preconstruction testing at no additional cost to the agency.

SURFACE PREPARATION AND APPLICATION OF SHOTCRETE

A. Surface Preparation - Clean loose material, mud, rebound, and other foreign matter from all surfaces to receive shotcrete. Remove curing compound on previously placed shotcrete surfaces by sandblasting. Install approved depth gages to indicate the thickness of the shotcrete layers. Install depth gages on 6-ft centers longitudinally and transversely with no less than two gauges per increment of surface area to receive the shotcrete. Moisten all surfaces.

B. Weather Limitations - Place shotcrete when the ambient temperature is 41ºF(5ºC) or higher. Do not perform shotcrete operations during high winds and heavy rains.

C. Shotcrete Application

1. Do not apply shotcrete to frozen surfaces.
2. Use acceptable nozzle operators who have fabricated acceptable test panels.
3. Apply shotcrete within 45 minutes of adding cement to the mixture. Apply shotcrete at a mix temperature between 50ºF (10ºC) and 86ºF (30ºC).
4. Direct the shotcrete at right angles to the receiving surface except when shooting ground reinforcing bars. Apply shotcrete in a circular fashion to build up the required layer thickness. Apply shotcrete in a steady uninterrupted flow. If the flow becomes intermittent, direct the flow away from the work area until it becomes steady.
5. Make the surface of each shotcrete layer uniform and free of sags, drips, or runs.
6. Limit the layer thickness of each shotcrete application to 2 in. Thicker applications may be approved if the contractor can demonstrate that no sloughing or sagging is occurring. If additional thickness is required, broom or scarify the applied surface and allow the layer to harden. Dampen the surface before applying an additional layer.
7. Remove laitance, loose material, and rebound. Promptly remove rebound from the work area.
SOIL NAIL WALL

8. Taper construction joints to a thin edge over a distance of at least 1 ft. Wet the joint surface before placing additional shotcrete on the joint. Do not use square construction joint.

D. Production Summary - Prepare and submit a summary of shotcrete production application for each shift. Furnish the summary to the Engineer within 24 hours. Include the following information in the report:

1. Quantity and location of shotcrete applied including sketches.
2. Observations of success or problems of equipment operation, application, final product conditions, and any other relevant issues during production and application.
3. Description of placement equipment.
4. Batch number(s) if applicable.

SHOTCRETE QUALITY CONTROL RECORDS

A. Submit field quality control test reports within two working days of performing the tests. Include the following information in the reports:

1. Sample identification including mix design and test panel number and orientation.
2. Date and time of sample preparation including name of persons preparing samples, curing conditions and sample dimensions.
3. Date, time, and type of test.
4. Complete test results including load and deformation data during testing, sketch of sample before and after testing, and any unusual occurrences observed.
5. Names and signature of person performing the test.
6. Location of steel reinforcement, if used, covered by shotcrete.
7. Name of nozzle operator

SHOTCRETE PROTECTION AND CURING

A. Protect and cure the surface according to Standard Specification Section 802. Clear curing compound shall be used as an interim cure for intermediate shotcrete surfaces. Apply curing compound to the final exposed shotcrete surface according to Standard Specification Section 802.17. Protect and maintain shotcrete at a temperature above 41°F (5°C) until shotcrete has achieved a minimum strength of 750 psi.

SHOTCRETE ACCEPTANCE

A. Material for concrete will be evaluated by visual inspection of the work, conformance testing and by certification for materials manufactured off-site. Compressive strength will be evaluated by conformance testing using Table 1 for specification limits. See Table 2 for minimum sampling and testing requirements and acceptance quality category.

Table 2: Sampling and Testing of Shotcrete.

<table>
<thead>
<tr>
<th>Material or Product</th>
<th>Property or Characteristic</th>
<th>Category</th>
<th>Test Methods or Specifications</th>
<th>Frequency(4)</th>
<th>Sampling Point</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Air content</td>
<td>–</td>
<td>AASHTO T 152</td>
<td>1 per load(1)</td>
<td>Truck, mixer or agitator(2)</td>
</tr>
</tbody>
</table>
SOIL NAIL WALL

<table>
<thead>
<tr>
<th>Shotcrete</th>
<th>Unit mass</th>
<th>AASHTO T 121</th>
<th>1 per load</th>
<th>Truck, mixer or agitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive strength</td>
<td>II</td>
<td>AASHTO T 22</td>
<td>1 set per 33 cy, but not less than 1 set each day</td>
<td>Production test panels</td>
</tr>
</tbody>
</table>

Notes:
1. When continuous mixing is used sample every 10 cy.
2. Sample according to AASHTO T 141.
3. Prepare production test panels according to procedures listed in section shotcrete preconstruction testing. Obtain two 3-in. diameter core specimens from each panel according to AASHTO T 24. A single compressive strength test result is the average result from two 3-in. diameter core specimens from the same test panel tested according to AASHTO T 22 at 28 days.
4. Engineer shall conduct verification testing at a rate of one (1) per four (4) performed by the Contractor or a minimum of one (1) per job.

BACKFILLING BEHIND WALL

Where required, fill the area between the wall facing and shotcrete in upper cantilever area with flowable select material.

ACCEPTANCE

Material for the soil nail retaining wall will be accepted based on the manufacturer production certification and from quality control and acceptance sampling and testing results as well as verification testing results. Construction of the soil nail retaining wall will be accepted based on conformance with the plans, specifications and this special provision.

METHOD OF MEASUREMENT: Soil nail walls will be measured by the square foot of front surface area between two foot below the proposed ground at the face of the wall and the top of the wall including any coping required.

BASIS OF PAYMENT: Soil nail walls completed, accepted and measured as provided above will be paid for at the contract unit price bid per square foot, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including design, preparing working drawings, testing, all concrete, reinforcing steel, fascia panels, coping, pneumatically placed concrete (shotcrete), expansion and construction joints, wall drainage materials, drilling, nail reinforcement, grout, test nails, geotechnical investigation, pipe underdrains; for performing mix designs and quality control and acceptance sampling and testing; and for doing all the work involved in installing the soil nails, design and installing the final facing wall complete in place, as shown on the working drawings and as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Contractor shall comply with applicable Federal, State, and local laws governing safety in accordance with Subsection 107.01(b) in any and all excavation and/or shoring operations. Contractor has the option of using a cut slope and/or shoring to maintain stability of the cut. Any shoring, and/or additional excavation, and subsequent backfill beyond the vertical cut line behind the pneumatically placed concrete will not be paid separately.

Payment will be made under:
## SOIL NAIL WALL

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Nail Wall</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>
Description. This item shall consist of the construction of mechanically stabilized earth (MSE) walls in accordance with these specifications and in conformity with the locations, dimensions, lines and grades shown on the plans. Modular Block wall systems will not be considered. All references to Division, Section, and Subsection refer to the Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition).

General. The same type retaining wall system shall be used at all locations. Any approved retaining wall system, except Modular Block Walls, on the Qualified Products List (QPL) will be acceptable provided that:

1. The maintenance-free life expectancy shall be at least seventy-five (75) years.
2. Retaining walls shall be designed by an Arkansas Registered Professional Engineer. The design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications and this Special Provision.
3. The basic wall geometry, including top and bottom of wall face, grade lines, length, and limits of walls shall be as shown on the plans.
4. Structural elements of the wall shall not interfere with the location of roadway drainage structures and end bent piling as shown on the plans.
5. An architectural finish as shown in the plans, or approved equivalent, will be required for the concrete wall face.
6. The wall system design shall comply with requirements for global stability as determined by the Department.
7. The passive resistance of the soil at the front face of the wall shall be neglected in the analysis of external stability for sliding.
8. The factored bearing resistance shown in the plans is recommended for the existing foundation material based on an estimated width of the reinforced zone. The Department will evaluate factored bearing pressures in excess of the recommended factored bearing resistance and in any undercut areas upon submittal of the wall system design.

Materials. (a) Concrete Facing Panels. The reinforced concrete facing panels shall be rectangular or square in shape, fabricated in accordance with Subsection 802.21 and Section 804. The materials shall meet the requirements of Subsections 802.02 and 804.02 with the following additions and modifications:
RETAINING WALLS

1. The Contractor shall submit his concrete mix design to the Resident Engineer for approval. The Portland cement concrete shall have a minimum 4,000 psi compressive strength at 28 days; with a minimum cement factor of 6 bags per cubic yard, an air content of 6% ± 2%, and a maximum aggregate size of 1 inch.

2. The units shall be fully supported by the forms until the concrete reaches a minimum compressive strength of 2,500 psi as evidenced by test cylinders cured in the same manner as the panels and tested in accordance with AASHTO T 22.

3. All units shall be handled, stored, and shipped in such a manner as to eliminate the dangers of chipping, discoloration, cracks, fractures, and excessive bending stresses. Stored panels shall be supported in firm blocking to protect the panel connection devices and the exterior finish.

4. Panel connection devices shall be positioned within a tolerance of 1 inch. Panel squareness, as determined by the difference between the two diagonals, shall not exceed 0.5 inch.

5. Units shall be rejected because of failure to meet any of the requirements specified above. In addition, any or all of the following shall be sufficient cause for rejection:
   - Imperfections.
   - Honeycombing or open texture concrete.
   - Cracked or severely chipped panels.
   - Color variation on front face of panel due to excess form oil or other causes.

6. The manufacturer shall have a Quality Control program whereby representative samples of raw materials (cement, aggregates, reinforcement) are tested and/or reviewed for conformity to specifications. In addition, quality control tests (slump, air content, concrete temperature, compressive strength, and gradations, as applicable) shall be conducted by the manufacturer during casting operations. Quality control tests shall be conducted in accordance with the AASHTO Testing Procedures. The frequency of quality control tests shall be a minimum of one (1) set of tests per pouring day for each type product (panels or coping).

Records of materials used in the manufacture of reinforced concrete facing panels and quality control tests shall be maintained by the manufacturer. The Department shall reserve the right to review records for compliance with all applicable specifications and to reject any non-conforming units. Reinforced concrete facing panels shall not be shipped nor incorporated into the job until all testing has been completed. Copies of the manufacturer’s quality control and inspection records shall be provided to the Engineer upon request.

The Department shall reserve the right to observe all manufacturing processes and conduct random quality assurance tests to determine compliance. If deemed necessary, drilled cores shall be taken at the direction of the Engineer to verify the compressive strength.
RETAINING WALLS

All reinforced concrete facing panels manufactured for use on Department projects shall be legibly marked on their back side with the cast date and a distinct identification number.

7. The manufacturer shall furnish a Certificate of Delivery for each shipment stating that the listed products conform to all applicable specifications. The information on the Certificate of Delivery shall include the state job number (or state purchase order number), consignee, destination, number of pieces, cast dates, identification numbers, and plant of origin. One copy of the Certificate of Delivery and shipping papers shall be furnished to the Engineer.

(b) Soil Reinforcing and Attachment Devices. All reinforcing and attachment devices shall be carefully inspected to ensure they are true to size and free from defects that may impair their strength and durability. Metallic reinforcements and attachment devices shall be galvanized in accordance with AASHTO M 111.

(c) Select Granular Backfill. (1) Method A Construction. When Method A Construction is shown in the plans, all backfill material used within the reinforcement zone shall be granular having an angle of internal friction greater than 28 degrees as determined by the standard direct shear test AASHTO T-236 on the portion finer than the No. 10 sieve, using a sample of the material compacted to 95 percent of AASHTO T-99 and shall have no cohesion. Aggregates meeting the material requirements of Section 302 for Selected Material (Class SM-1) or the material requirements of Section 303 for Aggregate Base Coarse (Class 7) are acceptable backfill materials and shall be placed and compacted in accordance with Subsections 210.07, 210.09, and 210.10. The Contractor shall perform quality control and acceptance sampling and testing of the backfill in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for density, moisture content, gradation, and plasticity index for each 3,000 cubic yards of backfill material placed except that at least one set of tests shall be performed on each layer of backfill. If the material used for Select Granular Backfill is Aggregate Base Coarse (Class 7) and the source remains consistent, testing requirements for gradation and plasticity index shall meet the minimum frequency of one test per 3,000 cubic yards. The Engineer may waive PI testing as outlined in Section 306. Construction requirements outlined in Subsection 302.02 shall apply.

Drainage fill material placed immediately behind the wall shall conform to the requirements of a Class 3 mineral aggregate as specified in Subsections 403.01 and 403.02. As shown on the plans, drainage fill material shall be placed for a minimum width of 12 inches behind the wall, for the full height of wall, in 10 inch loose lifts and compacted in such a manner as to avoid any damage or distortion of wall materials or wall alignment. The Contractor shall perform quality control and acceptance sampling and testing of the drainage fill material in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for gradation and decantation loss for each 500 cubic yards of drainage fill material.

The Contractor shall sample and test the backfill material for Dry Rodded Unit Weight in accordance with AASHTO T-19 and angle of internal friction prior to wall construction. The angle of internal friction used in the wall system design shall not exceed the angle of internal friction of the backfill material within the reinforcement zone. The Contractor shall conduct one additional shear test on a sample taken during the wall construction at a location as determined...
by the Engineer. If the backfill material source changes and/or material properties change during wall construction from the original sample tested, the angle of internal friction shall be re-verified. If the additional test result or the re-verified test result is less than the value utilized in the design of the wall, the material shall be removed and replaced with acceptable backfill material.

(2) **Method B Construction.** When Method B Construction is shown in the plans, all backfill material used within the reinforcement zone shall be mechanically crushed natural rock or stone of igneous, sedimentary, and/or metamorphic origin produced from a solid geological formation by quarrying methods meeting the requirements of Subsection 802.02(c) Coarse Aggregate for Class S concrete. The direct shear requirements may be waived in lieu of an assumed 34 degree soil angle of internal friction. The Contractor shall perform quality control and acceptance testing for gradation at a frequency of one test per 3,000 cubic yards. The Contractor shall sample and test the backfill material for Dry Rodded Unit Weight in accordance with AASHTO T-19 prior to wall construction.

(d) **Filter Fabric.** All joints between panels on the back face of the wall shall be covered with a geotextile filter fabric meeting the requirements of Subsection 625.02, Type 2. The minimum width and lap shall be 12 inches. Additional Type 2 geotextile filter fabric shall be placed as shown in the plans. The geotextile fabric and reinforcing elements used in the wall construction shall be able to resist deterioration when exposed to the properties of the concrete in the wall facing panels and the backfill material selected. Geotextile fabric shall be protected from sunlight during storage.

(e) **Coping.** Concrete for coping shall comply with the requirements of Section 802 for Class S(AE) Concrete. Reinforcing steel shall comply with the requirements of Section 804.

(f) **Buy America Requirements.** All iron and steel material used on Department projects must be in compliance with “Buy America” requirements and Subsection 106.01. All manufacturing processes of the iron or steel in a product (i.e., smelting/remelting, and any subsequent process which alters the steel material’s physical form or shape or changes its chemical composition) must occur within the United States to be considered of domestic origin. This includes, but is not limited to, such processes as rolling, extruding, machining, bending, grinding, drilling, and applying coatings. The use of pig iron or processed, pelletized, and reduced iron ore manufactured outside of the United States is permitted in the domestic manufacturing process for steel and/or iron materials. All steel and iron mill test reports must include a statement certifying that all manufacturing processes for the iron or steel product occurred in the United States. Each supplier/fabricator of an intermediate product shall also certify that the product complies with “Buy America” requirements.

**Working Drawings.** At least 30 calendar days prior to fabrication of the concrete panels, the Contractor shall submit four (4) copies of design calculations, working drawings, and material and construction specifications to the Resident Engineer for review. This will be used to verify compliance with design requirements. The drawings shall include details that provide for flexibility, differential settlement, and aesthetics at changes in direction of the wall alignment. Test results for gradation, plasticity index, unit weight and angle of internal friction of the Select Granular Backfill shall be submitted with the Working Drawings for all proposed sources. These
results shall state Method A Construction or Method B Construction. The wall design engineer shall review all proposed Select Granular Backfill sources and shall state in writing that the materials meet the wall manufacturer’s recommendations regarding Electrochemical Properties. The above verification process shall not relieve the Contractor of any of his responsibility under the contract for the successful completion of the work.

Architectural Finish – Fractured Fin. Wall Nos. 1-8 shall receive a Fractured Fin architectural finish. The Fractured Fin pattern shall have ridges approximately 1” deep. Before production of the precast concrete panels may begin, approval of the architectural finish will be required. Approval will be based on a sample panel with approximate dimensions of 6 feet by 6 feet. In lieu of a sample panel, the Engineer may accept proof of previous work performed with similar size panels and finishes. Prior to construction of any panels, a work plan showing the materials, construction methods, name and pattern number of form liner manufacturer, and other features affecting the finish shall be submitted to and approved by the Engineer. All panels shall be constructed according to the approved plan.

Textured Coating Finish. The USAF form insert on Wall Nos. 2, 3, and 5-8 shall receive a textured coating finish (smooth texture) in accordance with the plans. All surfaces to receive the textured coating finish shall be cleaned as necessary for bonding of the finish. Protective Surface Treatment shall not be used on surfaces where textured coating finish is specified.

The Contractor shall furnish a small quantity of the materials for textured coating finish in the specified colors for use on a designated test area. Color adjustments may be necessary as directed by the Engineer and may require application to additional test areas. The final colors used on the project shall be as approved by the Engineer. The color of the textured coating finish from Federal Color Standard 595B and the areas it is applied to shall be in accordance with the details shown in the plans.

Construction. The Contractor will be required to have an experienced manufacturer’s representative knowledgeable in the design and construction of the retaining wall system available throughout the construction period. The Construction Method shall not change during wall construction. The Contractor shall furnish a certification that the components of the wall system were manufactured in compliance with the approved design and that the materials furnished comply with the specifications.

Prior to wall construction, the foundation shall be compacted as directed by the Engineer. Any unsuitable foundation material shall be excavated and backfilled according to the undercutting requirements of this special provision. At each foundation level, a cast-in-place unreinforced concrete leveling pad shall be provided. The leveling pad shall be in place a minimum of 24 hours before panel erection begins and have a minimum earth cover as shown on the plans. Concrete for the leveling pad shall comply with the requirements of Section 802 for Class A or higher strength concrete as required by the wall supplier’s construction requirements.

Precast concrete panels shall be placed so that their final position is vertical as shown on the plans. As drainage and backfill material are placed behind the panels, the panels shall be maintained in position by means of temporary wedges or bracing according to the wall supplier’s recommendations. Concrete facing vertical tolerances and horizontal alignment tolerances shall
not exceed 0.75 inch per ten (10) feet of length. During construction, the maximum allowable offset in any panel joint shall be 0.75 inch. The completed overall vertical tolerance of the wall (top to bottom) shall not exceed 0.5 inch per ten (10) feet of wall height.

As shown on the plans, drainage fill material shall be placed for a minimum width of 12 inches behind the wall, for the full height of the wall, in 10 inch loose lifts and compacted in such a manner as to avoid any damage or distortion of wall materials or wall alignment.

Select Granular Backfill placement shall closely follow the erection of each lift of panels. Backfill material within the reinforcement zone shall be compacted and placed in conformance with the applicable provisions of Subsection 302.03. At each reinforcement level, the backfill shall be placed to the level of the connection. Backfill placement methods near the facing shall assure that no voids exist directly beneath the reinforcing elements.

Backfill shall be placed in such a manner as to avoid any damage or disturbance of the wall materials or misalignment of the facing panels or reinforcing elements. Any damage or distortion of the wall materials during backfill placement shall be corrected at the Contractor’s expense. Construction traffic will not be permitted on wall reinforcement unless a minimum backfill cover of 8 inches is provided.

The Contractor shall be responsible for preventing surface water or rainwater from damaging the retaining walls during construction. This shall include shaping the backfill to prevent water from ponding or flowing on the backfill or against the wall face. Any damage or movement caused by erosion, sloughing, or saturation of the retaining wall or embankment backfill shall be repaired at the Contractor’s expense.

Unless otherwise noted in the plans, the exposed surfaces of the coping on the top of the wall shall receive a Class 2 Rubbed Finish in accordance with Subsection 802.19.

Undercutting. All material within any undercut areas shown in the plans shall be excavated to the limits shown. Additional soft and unstable materials shall be excavated as directed by the Engineer. Unless otherwise shown in the plans, all undercut areas shall be backfilled with granular material meeting the requirements specified in the plans. The granular backfill material shall be placed and compacted in accordance with Subsections 210.07, 210.09 and 210.10. The Contractor shall perform quality control and acceptance sampling and testing of the backfill in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for density, moisture content, gradation and plasticity index for each 3000 cubic yards of backfill material placed except that at least one set of tests for density and moisture content shall be performed on each layer of backfill.

When Stone Backfill is shown in the plans, all undercut areas shall be backfilled with material meeting the requirements of Section 207 Stone Backfill. The Stone Backfill shall be placed, measured and paid in accordance with Section 207.

Method of Measurement. Retaining walls will be measured by the square foot of front surface area between the top of the leveling pad at the face of the wall and the top of the wall including any coping required.


RETAINING WALLS

All excavation within the limits of any undercut areas will be measured as Unclassified Excavation unless Stone Backfill is specified in the plans. All excavation directly over any undercut areas, outside the limits of the reinforcement zone, within the reinforcement zone and for the leveling pad will be measured as Unclassified Excavation.

All backfill and drainage fill material placed behind retaining walls within the reinforcement zone will be measured as Select Granular Backfill in its final position in accordance with Subsection 210.12(c).

All backfill placed directly over the limits of any undercut areas and outside the limits of the reinforcement zone will be measured as Compacted Embankment. All backfill within the limits of any undercut areas will be measured as shown in the plans.

**Basis of Payment.** Retaining walls completed, accepted and measured as provided above will be paid for at the contract unit price bid per square foot for Retaining Wall, which price shall be full compensation for designing; for quality control and acceptance sampling and testing; for providing the architectural finish; for application of the textured coating finish for the USAF form insert; for furnishing all materials except backfill and drainage fill materials but including pipe underdrains and joint materials; for constructing the leveling pad, the wall, and the coping; and for all labor, equipment, tools, and incidentals necessary to complete the work.

All excavation within the limits of any undercut areas will be paid for as Unclassified Excavation unless Stone Backfill is specified in the plans. All excavation directly over any undercut areas outside the limits of the reinforcement zone, within the reinforcement zone and for the leveling pad will be paid for as Unclassified Excavation in accordance with Section 210. All backfill within the limits of any undercut areas will be paid for as shown in the plans.

All backfill and drainage fill material placed behind retaining walls within the reinforcement zone, including quality control and acceptance sampling and testing, will be paid for as Select Granular Backfill in accordance with this Special Provision.

All backfill directly over the limits of any undercut areas and outside the limits of the reinforcement zone, including quality control and sampling and testing, will be paid for as Compacted Embankment in accordance with Section 210.

The Contractor shall comply with applicable Federal, State, and local laws governing safety in accordance with Subsection 107.01(b) in any and all excavation and/or shoring operations. Any shoring and additional excavation with replacement backfill outside the reinforcement zone or outside the limits and not directly over any undercut areas will not be paid for directly, but will be considered subsidiary to the unit price bid per square foot for Retaining Wall.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retaining Wall</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Select Granular Backfill</td>
<td>Cubic Yard</td>
</tr>
</tbody>
</table>
Description. This item shall consist of constructing mechanically stabilized earth (MSE) temporary wire face walls in accordance with these specifications and in conformity with the locations, dimensions, lines and grades shown on the plans. All references to Division, Section, and Subsection are made to the Standard Specifications for Highway Construction, Edition of 2014.

General. The temporary retaining walls are to be constructed to provide for stage construction of the roadway as shown on the plans. When the portion of the roadway immediately adjacent to the temporary retaining wall is constructed, the temporary walls will be retained and buried.

The same type temporary retaining wall system shall be used at all locations which will be acceptable provided that:

1. Temporary retaining walls shall be designed by an Arkansas Registered Professional Engineer. The design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications and this Special Provision. When used with a permanent wall system the temporary wall system shall be compatible.

2. The basic wall geometry, including top of walls, grade lines, and length and limits of walls shall be as shown on the plans.

3. Structural elements of the wall shall not interfere with the location of roadway drainage structures and end bent piling as shown on the plans.

4. The wall system design shall comply with requirements for global stability as determined by the Department for temporary retaining walls.

5. The passive resistance of the soil at the front face of the wall shall be neglected in the analysis of external stability for sliding.

6. The factored bearing resistance shown in the plans is provided for the in-situ foundation material based on an estimated width of the reinforcement zone. The Department will evaluate recommended factored bearing resistance less than factored bearing pressure upon submittal of the wall system design.

7. Temporary retaining walls shall have a minimum five year design life.

8. Metal components shall conform to the minimum requirements of AASHTO M 32 and welded into the finished configuration in accordance with AASHTO M 55.

9. Retention fabric shall be as specified by the wall system supplier.

10. Material specifications for all geotextiles shall be provided with the working drawings. The design engineer shall provide certification that all exposed geotextiles meet the required design life.
TEMPORARY RETAINING WALLS

Materials. (a) Select Granular Backfill. All backfill material used within the reinforcement zone shall be granular having an angle of internal friction greater than 28 degrees as determined by the standard direct shear test AASHTO T 236. The direct shear test shall be performed on the portion passing the No. 10 sieve, using a sample of the material compacted to 95 percent of AASHTO T 99, Method A. Aggregates meeting the material requirements of Section 302 for Selected Material (Class SM-1), the material requirements of Section 303 for Aggregate Base Course (Class 7), or the material requirements Subsection 802.02(c) for Coarse Concrete Aggregate for Class S concrete are acceptable backfill materials.

When the temporary wall is constructed as a phased portion of a permanent MSE wall, the backfill material used for the temporary shall match that used for the permanent wall.

The Contractor shall sample and test the backfill material prior to wall construction to verify that the angle of internal friction used in the wall system design does not exceed the measured angle of internal friction of the backfill material to be used within the reinforcement zone. The Contractor shall conduct one additional shear test on a sample taken during the wall construction at a location as determined by the Engineer. Also, if the backfill material source changes and/or material properties change during wall construction from the original sample tested, the angle of internal friction shall be re-verified. If either the additional test result or the re-verified test result is less than the design value used in the design of the wall, the material shall be removed and replaced with acceptable backfill material.

The Contractor shall perform quality control and acceptance sampling and testing of the backfill in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for density, moisture content, gradation, and plasticity index for each 3,000 cubic yards of backfill material placed and that at least one set of tests for density and moisture content shall be performed on each layer of backfill.

If Selected Material (Class SM-1) or Aggregate Base Course (Class 7) is utilized, drainage fill shall be placed immediately behind the wall face. Drainage fill material shall conform to the requirements of a Class 3 mineral aggregate as specified in Subsections 403.01 and 403.02. Drainage fill material shall be placed for a minimum width of 12 inches behind the wall, for the full height of wall, in 10 inch loose lifts and compacted in such a manner as to avoid any damage or distortion of wall materials or wall alignment. The Contractor shall perform quality control and acceptance sampling and testing of the drainage fill material in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for gradation and decantation loss for each 500 cubic yards of drainage fill material.

If Coarse Concrete Aggregate is utilized, testing for density, moisture content, plasticity, and direct shear are not required. The direct shear requirements may be waived in lieu of an assumed internal friction angle of 34 degrees.

(b) Buy America Requirements. All iron and steel material used on Department projects must be in compliance with “Buy America” requirements and Subsection 106.01. All manufacturing processes of the iron or steel in a product (i.e., melting/remelting, and any subsequent process which alters the steel material’s physical form or shape or changes its chemical composition) must occur within the United States to be considered of domestic origin. This
TEMPORARY RETAINING WALLS

includes, but is not limited to, such processes such as rolling, extruding, machining, bending, grinding, drilling, and applying coatings. The use of pig iron or processed, pelletized, and reduced iron ore manufactured outside of the United States is permitted in the domestic manufacturing process for steel and/or iron materials. All steel and iron mill test reports must include a statement certifying that all manufacturing processes for the iron or steel product occurred in the United States. Each supplier/fabricator of an intermediate product shall also certify that the product complies with “Buy America” requirements.

Working Drawings. At least 30 calendar days prior to fabrication of the temporary retaining wall, the Contractor shall submit four (4) copies of design calculations, working drawings, and material and construction specifications to the Engineer for review. This will be used to verify compliance with design requirements. The drawings shall include details that provide for flexibility, differential settlement, and changes in direction of the wall alignment.

The above verification process shall not relieve the Contractor of any of their responsibility under the contract for the successful completion of the work.

Construction. The Contractor will be required to have a manufacturer’s representative experienced and knowledgeable in the design and construction of the temporary retaining wall system available throughout the construction period.

The Contractor shall furnish a certification that the components of the temporary retaining wall system were manufactured in compliance with the approved design and that the materials furnished comply with the specifications and this SP.

Prior to wall construction, the foundation shall be proof rolled as directed by the Engineer. Any unsuitable foundation material shall be excavated and backfilled according to the undercutting requirements of this special provision.

The wall system components shall be constructed in accordance with the wall system supplier’s recommendations and construction manual. The wall shall be constructed vertical or as near vertical as the wall system will allow.

Select Granular Backfill material shall be placed and compacted in accordance with Subsections 210.07, 210.09 and 210.10. Backfill shall be placed in such a manner as to avoid any damage or disturbance to the wall materials or misalignment of the facing or reinforcing elements. Any misalignment, damage, or distortion of the wall materials during backfill placement shall be corrected at the Contractor’s expense. Construction traffic will not be permitted on the wall reinforcement unless a minimum backfill cover of 8 inches is provided.

The Contractor shall be responsible for preventing surface water or rainwater from damaging the temporary retaining walls during construction. This shall include shaping the backfill to prevent water from ponding or flowing on the backfill or against the wall face. Any damage or movement caused by erosion, sloughing, or saturation of the temporary retaining wall or embankment backfill shall be repaired at the Contractor’s expense.
TEMPORARY RETAINING WALLS

Undercutting. All the material within any undercut areas shown in the plans shall be excavated to the limits shown. Additional soft and unstable materials shall be excavated as directed by the Engineer. All undercut areas shall be backfilled with Select Granular Backfill unless otherwise specified in the plans or directed by the Engineer.

Method of Measurement. Temporary retaining walls will be measured by the square foot of total surface area between the base of the wall and the top of the wall.

All excavation within the limits of any undercut areas and excavation within the reinforcement zone will be measured as Unclassified Excavation.

All backfill placed behind temporary retaining walls within the reinforcement zone will be measured as Select Granular Backfill in its final position in accordance with Subsection 210.12(c). All backfill placed within the limits of any undercut areas will also be measured as Select Granular Backfill in its final position in accordance with Subsection 210.12(c) unless alternative remediation is directed in the plans or by the Engineer.

Basis of Payment. Temporary retaining walls completed, accepted, and measured as provided above will be paid for at the contract unit price bid per square foot for Temporary Retaining Walls, which price shall be full compensation for designing; for quality control and acceptance sampling and testing; for furnishing all materials except backfill material; for constructing the wall; and for all labor, equipment, tools, and incidental necessary to complete the work.

All excavation within the limits of any undercut areas and excavation within the reinforcement zone will be paid for as Unclassified Excavation in accordance with Section 210.

All backfill material placed behind temporary retaining walls within the reinforcement zone, including quality control and acceptance sampling and testing, will be paid for as Select Granular Backfill in accordance with this Special Provision.

All backfill placed within the limits of any undercut areas performed for Temporary Retaining Walls, including quality control and acceptance sampling and testing, will be paid for as Select Granular Backfill unless alternative remediation is directed in the plans or by the Engineer.

The Contractor shall comply with applicable Federal, State, and local laws governing safety in accordance with Subsection 107.01(b) in any and all excavation and/or shoring operations. Any additional excavation and replacement backfill outside the reinforcement zone or outside the limits and not directly over any undercut areas will not be paid for directly but will be considered subsidiary to the unit price bid per square foot for Temporary Retaining Walls.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Retaining Wall</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Select Granular Backfill</td>
<td>Cubic Yard</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
JOB NO. CA0604
CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS

Sections 802 and 803 of the Standard Specifications for Highway Construction, Edition of 2014, are hereby amended as follows:

The following is added as the last sentence of the fourth paragraph of Subsection 802.17(b):

The use of lithium curing compound as a replacement for the methods specified above will not be permitted.

The following is added as the last paragraph of Subsection 803.02 (b):

Lithium curing compound will not be permitted as a substitute for Class 2 Protective Surface Treatment.
Description. Work under this item shall consist of the design, manufacturing, and painting of replicas C-130 J plane models in accordance with the details and requirements shown on the plans and this Special Provision.

Work to be Performed. The manufacturer of the mouldings shall be responsible for designing the plane models and the attachments to the bridge components. The attachment details shown on the plans are schematic in nature. The final attachment details shall be the responsibility of the manufacturer.

The Contractor shall install the plane models in accordance with the manufacturer’s recommendations.

Materials. (a) Plane Mouldings – Mouldings shall be made of high density polyurethane rigid foam, which can be worked with standard wood working tools, resistance to chemicals, solvents, moisture and splitting, flame retardant and meet the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>12-14 lbs./cubic foot</td>
</tr>
<tr>
<td>Hardness</td>
<td>Above 30 Shore D</td>
</tr>
<tr>
<td>Ozone Depletion Factor</td>
<td>Zero (CFC free, water-blown)</td>
</tr>
<tr>
<td>Temperature Range without Degradation</td>
<td>-302° F / +248° F</td>
</tr>
<tr>
<td>Ignition Temperature</td>
<td>Greater than 700° F</td>
</tr>
<tr>
<td>Coefficient of Linear Thermal Expansion</td>
<td>0.00003 in/in / °F</td>
</tr>
<tr>
<td>Toxicity</td>
<td>None to low oral and foam dust inhalation</td>
</tr>
</tbody>
</table>

(b) Adhesive – The adhesive for attaching models to concrete surfaces shall be an acrylic copolymer based watery dispersion glue meeting the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binder</td>
<td>Acrylic copolymer 18.5%</td>
</tr>
<tr>
<td>Mineral Fillers</td>
<td>59%</td>
</tr>
<tr>
<td>Solvent (Ethanol)</td>
<td>0.9%</td>
</tr>
<tr>
<td>Biocide Isothiszolin based</td>
<td>0.1%</td>
</tr>
<tr>
<td>Water</td>
<td>21.5%</td>
</tr>
<tr>
<td>Viscosity (Brookfield)</td>
<td>300,000 – 350,000 CPS</td>
</tr>
<tr>
<td>pH</td>
<td>Neutral (7-8)</td>
</tr>
<tr>
<td>Density</td>
<td>1.58</td>
</tr>
<tr>
<td>Solids Content</td>
<td>77%</td>
</tr>
<tr>
<td>Dry Film</td>
<td>Tough, elastic, good ageing resistance</td>
</tr>
<tr>
<td>Open Time</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Application Temperature</td>
<td>Above 40° F</td>
</tr>
<tr>
<td>Shear and Tensile Long Term Bond (Creep)</td>
<td>per the certified Test Data</td>
</tr>
</tbody>
</table>

(c) Paint - Use the best quality oil based paint with no lead content manufactured by Sherwin-Williams, Benjamin Moore, or Pittsburg Paints or approved equal that will provide an effective
PLANE MOULDINGS

UV resistance to polyurethane foam substrate. Prime and each of the two topcoats shall have 2.0 mil minimum dry film thickness.

Submittals. (a) Material Certification, Product and Test Data, Submit this information for high density polyurethane rigid foam and its adhesive indicating conformance with these specifications. Submit adhesive and shear tensile bond strength data including long term creep effect based on certified tests.

(b) Paint – Submit paint manufacturer’s product data for paint and caulking compound for filling holes and related requirements and recommendations.

(c) Full Scale Mockup - Submit full scale mockup of airplane model for review and approval.

(d) Shop Drawings – Submit shop drawings showing attachment details and dimensions, related manufacturer requirements and recommendations and location dimensions for each item to be attached to concrete surface. Provide information or calculations justifying strength adequacy for the amount and configuration of adhesive used for attachment.

(e) Warranty – Provide 10-year minimum warranty for adhesive and painting system. Increase paint coating thickness if required for warranty.

Construction / Installation. (a) Fabrication – Work the material to provide required shape, size and profile indicated on the plans for the airplane models. Provide attachment details for installation in accordance with the approved shop drawings. Obtain Owner’s approval of full-scale mockup prior to production.

(b) Installation – Prepare surface receiving adhesive in accordance with adhesive manufacturer’s recommendations prior to application. Install airplane models utilizing approved attachment details shown in the shop drawings.

(c) Finishing - Fill holes with approved caulking material per the manufacturer’s recommendations. Protect concrete surfaces around each item being painted after installation. Spot clean and finish adjacent impacted areas in accordance with the manufacturer’s recommendations.

Method of Measurement. Plane Mouldings will be measured by the complete unit installed.

Payment. Work completed, accepted, and measured as provided above will be paid for at the contract unit price per each for Plane Mouldings. Such price shall be full compensation for the designing, manufacturing, painting and installation. The cost of the full scale mockup model shall be included in the cost per each Plane Mouldings.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plane Mouldings</td>
<td>Each</td>
</tr>
</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES

Description. This item consists of the optional use of compressible-washer-type direct tension indicators to indicate bolt tension in high strength bolted assemblies in accordance with these specifications and in conformity with the plans. All references to Division, Section, and Subsection refer to the Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition).

Subsection 807.06(a) is amended to include the following paragraph for Direct Tension Indicators (DTI):

Direct tension indicators shall be used in conjunction with bolts, nuts and washers as specified above. Direct tension indicators shall conform to the requirements of ASTM F959. Direct tension indicators for plain Type 1 high strength bolts shall be plain or galvanized. Galvanizing for direct tension indicators shall be by mechanical deposition in accordance with ASTM B695, Class 50. Direct tension indicators for Type 3 high strength bolts shall be Type 3.

Subsection 807.06(b) is modified as follows for Direct Tension Indicators (DTI): The first paragraph is deleted and the following substituted therefor:

(b) Required Tests. (1) Rotational Capacity. High strength fasteners, plain and galvanized, shall be subjected to a rotational capacity test according to ASTM F3125, Grade A325, Section 8.1, and shall meet the following requirements:

Subsection 807.06(b) is modified as follows for Direct Tension Indicators (DTI): The third paragraph is deleted and the following substituted therefor:

(2) Verification Testing for Direct Tension Indicators. Verification testing shall be performed in a calibration bolt tension device. A special flat insert shall be used in place of the normal bolt head holding insert. Three verification tests shall be required for each combination of fastener assembly rotational-capacity lot, direct tension indicator lot, and direct tension indicator position relative to the turned element to be used on the project. The fastener assembly shall be installed in the tension measuring device with the direct tension indicator located in the same position as in the work. The element intended to be stationary shall be restrained from rotation.

The verification test shall be conducted in two stages. The bolt, nut and direct tension indicator assembly shall be installed in a manner so that at least three and preferably not more than five threads are located between the bearing face of the nut and the bolt head. The bolt shall first be tensioned to the load equal to that listed in Table 807-3 under Verification Tension for the specified bolt. If an impact wrench is used, the tension developed using the impact wrench shall be no more than two-thirds of the required tension. Final tensioning shall be attained using
DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES

a manual wrench. The number of refusals of the 0.005" (0.125 mm) feeler gage in the spaces between the protrusions shall be recorded. The number of refusals for uncoated direct tension indicators under a stationary or turned element, or coated direct tension indicators under a stationary element, shall not exceed the number listed under Maximum Verification Refusals in Table 807-3 for the specified bolt. The maximum number of verification refusals for coated direct tension indicators, when used under a turned element, shall be no more than the number of spaces on the direct tension indicator less one. The direct tension indicator lot shall be rejected if the number of refusals exceeds the values in Table 807-3, or for coated if the gage is refused at all spaces.

After the number of refusals is recorded at Verification Tension, the bolt shall be further tensioned until the 0.005" (0.125 mm) feeler gage is refused at all the spaces and a visible gap exists in at least one space. The load at this condition shall be recorded and the bolt removed from the tension-measuring device. The nut shall be able to be run down freely by hand the complete thread length excluding thread run-out. If the nut cannot be run down for this thread length, the direct tension indicator lot shall be rejected unless the load recorded is less than 95 percent of the average load measured in the rotational capacity test of the fastener lot as specified in Subsection 807.06(b)(1) Rotational Capacity.

If the bolt is too short to be tested in the calibration device, the direct tension indicator lot shall be verified on a long bolt in a calibrator to determine the number of refusals at the Verification Tension listed in Table 807-3, the number of refusals shall not exceed the values listed under Maximum Verification Refusals in Table 807-3. Another direct tension indicator from the same lot shall then be verified with the short bolt in a convenient hole in the work. The bolt shall be tensioned until the 0.005" (0.125 mm) feeler gage is refused in all spaces and a visible gap exists in at least one space. The bolt shall be removed from the work and the nut shall be able to be run down freely by hand the complete thread length of the bolt excluding thread run-out. The direct tension indicator lot shall be rejected if the nut cannot be run down this thread length.

(3) Test Reports. The Engineer shall be furnished with a Manufacturer’s certified test report for each production lot for all high strength bolts, nuts, washers, and direct tension indicators used on the project. This certification shall provide a lot number, shop order number, or other identification such that the heat number from which the items were made can be traced. This identifying number shall also appear on the sealed shipping containers. The certification shall indicate when and where all testing was done, including the rotational capacity tests, and include the zinc thickness when galvanized bolts, nuts, washers and direct tension indicators are used. The certification for direct tension indicators shall also include compression test loads, gap clearance, nominal size and type.

Subsection 807.71(b) is modified as follows for Direct Tension Indicators (DTI): The first paragraph is deleted and the following substituted therefor:

(b) Bolts, Nuts, Washers, and Direct Tension Indicators. Fastener components shall conform to the requirements of Subsection 807.06.

Subsection 807.71(d) is deleted and the following substituted therefor:
DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES

(d) Installation. (1) Bolt Tension. Compressible-washer-type direct tension indicators shall be used to indicate bolt tension. They shall be subject to the verification testing specified in Subsection 807.06 (b)(2) and installed in accordance with the method below. Bolt lengths shall be sufficient to accommodate direct tension indicators and any additional washers required. Direct tension indicators will be required at all high strength bolted connections. Direct tension indicator type and manufacturer shall not be mixed within a project.

Unless approved by the Engineer direct tension indicator shall be installed under the head of the bolt and the nut turned to tension the bolt. The Manufacturer’s recommendations shall be followed for the proper orientation of the direct tension indicator and any additionally required washers. Installation of a direct tension indicator under the turned element may be permitted if a washer is used to separate the turned element from the direct tension indicator. The reuse of direct tension indicators will not be allowed. If it becomes necessary to loosen a previously tensioned bolt, the direct tension indicator shall be replaced.

Installation of fastener assemblies using direct tension indicators shall be in two stages. The stationary element shall be held against rotation during both stages. The connection shall first be brought to a snug tight condition with bolts installed in all holes. Snug tight, for bolt assemblies using direct tension indicators, exists when the plies of the joint are in firm contact and the number of spaces in which a 0.005" (0.125 mm) feeler gage is refused does not exceed that listed under Maximum Verification Refusals in Table 807-3. If the number of refusals exceeds the value listed under Maximum Verification Refusals in the Table 807-3 the direct tension indicator shall be replaced and the fastener assembly brought to a snug tight condition as specified above.

After all bolts in the connection have been properly brought to a snug tight condition, for uncoated direct tension indicators under a turned or stationary element and for coated direct tension indicators under a stationary element, the bolt assembly shall be further tensioned until the number of refusals of the 0.005" (0.125 mm) feeler gage is equal to or greater than the number listed under Minimum Installation Refusals in Table 807-3. If the bolt assembly is tensioned so that no visible gap remains in any space, the bolt assembly shall be removed and replaced by a new bolt and direct tension indicator that is properly tensioned. When coated direct tension indicators are used under a turned element, the 0.005" (0.125 mm) feeler gage shall be refused in all spaces, but a visible gap must remain in any space.

(2) Power Wrench Tightening. When power wrenches are used to provide the bolt tension specified Table 807-3, their setting shall be such that the requirements of Subsection 807.71(d)(1) are met. Wrenches shall be of adequate capacity to perform the required tightening of each bolt assembly in less than 10 seconds.
TABLE 807-3
DIRECT TENSION INDICATOR REQUIREMENTS

<table>
<thead>
<tr>
<th>U.S. Standard</th>
<th>METRIC (SI)</th>
<th>Maximum</th>
<th>DTI</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Verification</td>
<td>Verification</td>
<td>Refusals</td>
<td>Installation</td>
</tr>
<tr>
<td></td>
<td>Tension (Inches)</td>
<td>Tension (kN)</td>
<td></td>
<td>Refusals</td>
</tr>
<tr>
<td>1/2</td>
<td>13</td>
<td></td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>5/8</td>
<td>20</td>
<td>M16</td>
<td>96</td>
<td>1</td>
</tr>
<tr>
<td>3/4</td>
<td>29</td>
<td>M20</td>
<td>149</td>
<td>2</td>
</tr>
<tr>
<td>7/8</td>
<td>41</td>
<td>M22</td>
<td>185</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>54</td>
<td>M24</td>
<td>215</td>
<td>2</td>
</tr>
<tr>
<td>1 1/8</td>
<td>59</td>
<td>M27</td>
<td>280</td>
<td>2</td>
</tr>
<tr>
<td>1 1/4</td>
<td>75</td>
<td>M30</td>
<td>342</td>
<td>3</td>
</tr>
<tr>
<td>1 3/8</td>
<td>89</td>
<td>M36</td>
<td>499</td>
<td>3</td>
</tr>
<tr>
<td>1 1/2</td>
<td>108</td>
<td></td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

Subsection 807.71(e) is deleted and the following substituted therefor:

(e) Inspection. (1) The Engineer will observe the installation and tightening of bolts to determine that all bolts are tightened as specified. Where direct tension indicators are used the Engineer will examine at least 10 percent, but no less than 2 bolt assemblies in each connection for gap requirements and acceptability in accordance with the requirements of paragraph (d)(1). If any bolt assembly fails to meet these requirements all bolt assemblies in the connection shall be examined by the Engineer and the Fabricator or Erector shall retighten or replace bolt assemblies according to paragraph (d)(1).

(2) At the direction of the Engineer the Contractor may be required to inspect tightened bolt assemblies in a connection using an inspection wrench (only calibrated torque wrench will be acceptable). The inspection shall be conducted before loss of lubricant or corrosion influences the tightening torque.

The inspection wrench shall be calibrated by tightening three typical sample bolt assemblies of the same grade, size and condition as those under inspection in a calibration bolt tension device. A special flat insert shall be used in place of the normal bolt head holding insert. Each sample bolt assembly shall be individually placed in the calibration device and tightened to the verification tension specified in Table 807-3 for the grade and size being inspected. The fastener assembly shall be installed in the tension measuring device with the direct tension indicator located in the same position as in the work. The element intended to be stationary shall be restrained from rotation and here shall be a washer under the turned element of each sample bolt assembly. The inspecting wrench shall be applied to the tightened sample bolt assembly and the
torque necessary to turn the nut or head $5^\circ$ (approximately 1" [25 mm] at 12" [300 mm] radius) in the direction of tensioning shall be determined. The average of the torque measured in the testing of the three sample bolt assemblies shall be taken as the job inspection torque.

Where directed by the Engineer bolt assemblies represented by the sample bolt assembly and that have been tightened in the structure shall be inspected by applying the inspection wrench and its job inspection torque. If no nut or bolt head is turned by this application of the job inspecting torque, the connection will be accepted as properly tightened. If any nut or bolt head is turned by the application of the job inspecting torque, this torque shall be applied to all bolts in the connection, and all bolt assemblies whose nut or head is turned by the job inspecting torque shall be tightened and reinspected, or alternatively, the Fabricator or Erector, at his option, may retighten all of the bolt assemblies in the connection and resubmit the connection for the specified inspection.

**Payment.** All costs incurred in complying with this Special Provision including all costs for furnishing, installing, and testing of Direct Tension Indicators will not be measured or paid for separately, but shall be considered subsidiary to the items of “Structural Steel in Plate Girder Spans ()” and “Structural Steel in Beam Spans ()”. 
Description. This specification covers special safety requirements during the construction of Bridge Nos. 07544, 07545, A&B7546, and the removal of Bridge Nos. 03079, 03080 and A3080. These requirements are intended for the safety of both the traveling public and the workers. Any modifications must meet the approval of the Engineer.

Construction of New Bridge. (a) Erection of structural steel, placement and removal of safety platforms, painting and other activities deemed necessary by the Engineer on the spans over Highway 67 and Vandenberg Blvd. shall be limited to off peak traffic hours between 9:00 p.m. and 5:00 a.m. Monday through Saturday, or anytime on Sunday, but will not be permitted on legal holidays or weekends adjacent to these holidays. During this time window, all traffic may be stopped for short intervals of time, not to exceed 15 minutes, in order that the above activities can progress without endangering the traveling public. Between closure periods the roadway must be opened for a sufficient time to allow re-establishment of the normal flow of traffic. Time windows are subject to adjustment by the Engineer when necessary to accommodate special events or situations.

(b) The Contractor shall notify the Resident Engineer no less than five days before erection of structural steel or any other activities that will temporarily or permanently reduce the vertical clearance over the above listed roadway(s). Notification is required for each subsequent activity that will reduce the previous existing clearance. A minimum vertical clearance of 14'-0" must be maintained during all activities.

(c) The Contractor shall notify all local law enforcement and emergency agencies of closures or other activities that will affect normal flow of traffic on the above listed roadway(s) no less than three days before any such activities occur.

(d) Construction of bents and embankments shall be accomplished in such a manner that traffic is maintained on the highway as described above. Precast barriers shall be placed as shown on the roadway plans before work is performed. Sheet piling or other means shall be used to prevent embankment or excavated material from spilling onto the existing highway or to protect the shoulders from bent excavation. Excavation for footings and pouring of concrete shall be accomplished without construction equipment obstructing traffic.

Details of the shoring – complete with dimensions, design calculations, and kind and condition of materials – must be submitted to the Engineer for informational and record purposes prior to construction. These details must be prepared and/or approved by a Professional Engineer licensed in Arkansas.
SPECIAL SAFETY REQUIREMENTS FOR BRIDGES

The Contractor shall construct the shoring in accordance with the details submitted to the Engineer and the results obtained by the use of the shoring design are the Contractor’s responsibility.

(e) During the erection of the structural steel, permanent bents or sufficient falsework shall be provided for support of the steel beams. Highway traffic shall not be allowed to travel under a span while a piece of structural steel on that span is being moved into position or before a steel beam is securely supported by falsework or by a permanent bent. Equipment or materials of any kind shall not be hoisted over highway traffic.

Any falsework or construction equipment required for the erection of the structural steel, or for other activities, shall be protected by precast barriers as shown on Standard Drawing TC-4. The precast barriers may be located to close a shoulder as approved by the Engineer. Appropriate signs must be in place when a shoulder is closed.

(f) Immediately after erection of structural steel, a safety platform shall be constructed directly under the steel beams on the spans over the highway for the entire area of construction to protect traffic from falling objects. The Contractor must devise a method of support for the safety platform used under the deck outside the exterior beams. The safety platform outside the exterior beams shall be below and independent of the overhang brackets. The safety platform between the exterior beams shall be plywood sheets adequately supported on top of the bottom beam flange, or other method as submitted by the Contractor.

Details for the platform construction - complete with dimensions, design calculations, and kind and condition of materials - must be submitted to the Engineer for informational and record purposes prior to construction. These details must be prepared and/or approved by a Professional Engineer. The Contractor shall construct the platform in accordance with the details submitted to the Engineer and the results obtained by the use of the platform design are the Contractor’s responsibility. Traffic shall not be allowed to travel under a portion of platform being installed or removed.

(g) Permanent steel deck forms shall be used between beams in spans over the highway. Further requirements and details of permanent steel deck forms may be found on Standard Drawing No. 55005 and Subsection 802.14(b) of the Standard Specifications. Permanent steel deck forms will not be considered as part of the required safety platform.

(h) The epoxy tie coat may be applied before erection if the urethane coat can still be applied after erection but within the time interval recommended by the Manufacturer. The application of the urethane coat shall be deferred until adjoining concrete work has been placed and finished. If concreting operations damage the epoxy tie coat, the surface shall be recleaned and repainted. Spray painting will be permitted in applying the coat(s) of paint after erection to the spans over the highway during the work periods described above. The Contractor shall use tarps or similar curtains while spraying spans over the existing highway and when adjacent to traffic to prevent damage to highway traffic from drift. The Contractor shall assume all responsibility for any damage.
SPECIAL SAFETY REQUIREMENTS FOR BRIDGES

Removal of Existing Bridge. (a) Removal of structural steel, placement and removal of safety platforms, and other activities deemed necessary by the Engineer on the spans over Highway 67 and Vandenberg Blvd. shall be limited to off peak traffic hours between 9:00 p.m. and 5:00 a.m. Monday through Saturday, or anytime on Sunday, but will not be permitted on legal holidays or weekends adjacent to these holidays. During this time window, all highway traffic may be stopped for short intervals of time, not to exceed 15 minutes, in order that the above activities can progress without endangering the traveling public. Between closure periods the roadway must be opened for a sufficient time to allow re-establishment of the normal flow of traffic. Time windows are subject to adjustment by the Engineer when necessary to accommodate special events or situations.

(b) The Contractor shall notify the Resident Engineer no less than five days before removal of structural steel or any other activities that will temporarily or permanently reduce the vertical clearance over the above listed roadway(s). Notification is required for each subsequent activity that will reduce the previous existing clearance. A minimum vertical clearance of 14'-0" must be maintained during all activities.

(c) The Contractor shall notify all local law enforcement and emergency agencies of closures or other activities that will affect normal flow of traffic on the above listed roadway(s) no less than three days before any such activities occur.

(d) Removal of bents shall be accomplished in such a manner that traffic is maintained on the highway as described above. Precast barriers shall be placed as shown on the roadway plans before work is performed. Sheet piling or other means shall be used to prevent embankment or excavated material from spilling onto the existing highway or to protect the shoulders from bent excavation. Excavation for footings and pouring of concrete shall be accomplished without construction equipment obstructing traffic.

Details of the shoring – complete with dimensions, design calculations, and kind and condition of materials – must be submitted to the Engineer for informational and record purposes prior to construction. These details must be prepared and/or approved by a Professional Engineer licensed in Arkansas.

The Contractor shall construct the shoring in accordance with the details submitted to the Engineer and the results obtained by the use of the shoring design is the Contractor’s responsibility.

(e) During the removal of the structural steel, permanent bents or sufficient falsework shall be provided for support of the steel beams. Vehicles shall not be allowed to travel under a span while a piece of structural steel on that span is being removed or before a steel beam is securely supported by falsework or by a permanent bent. Equipment or materials of any kind shall not be hoisted over highway traffic.

Any falsework or construction equipment required for the removal of the structural steel, or for other activities, shall be protected by precast barriers as shown on Standard Drawing TC-4. The precast barriers may be located to close a shoulder as approved by the Engineer. Appropriate signs must be in place when a shoulder is closed.
SPECIAL SAFETY REQUIREMENTS FOR BRIDGES

(f) Before removing any part of the superstructure over or immediately adjacent to a highway or shoulders, a safety platform shall be constructed directly under the steel beams on the spans and shoulders over the highway for the entire area of demolition to protect traffic from falling objects. This platform shall consist of timbers, heavier than plyboard, capable of supporting pieces of concrete falling from the deck during its removal. The platform may be positioned between the existing beams and supported on top of the bottom beam flanges. The Contractor must devise a method of support for the safety platform used under the deck outside the exterior beams. After removing the concrete from the superstructure, the safety platform shall be removed.

Details for the platform construction - complete with dimensions, design calculations, and kind and condition of materials - must be submitted to the Engineer for informational and record purposes prior to construction. These details must be prepared and/or approved by a Professional Engineer. The Contractor shall construct the platform in accordance with the details submitted to the Engineer and the results obtained by the use of the platform design are the Contractor’s responsibility. Traffic shall not be allowed to travel under a portion of platform being installed or removed.

Payment. No direct payment will be made for this work. It shall be considered subsidiary to other items in the contract.
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SHORING FOR CULVERTS

DESCRIPTION: Work under this item shall consist of the design, construction, and removal of a shoring or bracing system that may be required to retain the existing, temporary, or new roadway embankment and to maintain traffic during construction of culverts. The shoring system shall provide sufficient clearance for excavation and construction work and shall ensure the safety of the traveling public and workmen at all times.

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

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

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

PAYMENT: No direct payment will be made for work described in this special provision (which includes preparation of necessary design details and drawings, construction and removal of shoring, and for all materials, labor, tools, equipment, and incidentals necessary to complete the work) but shall be considered subsidiary to other pay items in the contract.
Description. Work under this item shall consist of the design, construction, and removal of a shoring or bracing system to retain existing embankments and to maintain traffic during construction of new Bridge Nos. 07544 and A&B7546, removal of Bridge Nos. 03079, 03080, and A3080, construction of retaining walls and roadway embankments. Shoring may consist of sheet piling, anchored walls, or other bracing systems. The shoring system shall provide sufficient clearance for excavation and construction work and shall ensure the safety of the traveling public and workers at all times.

The maintenance of traffic plans and bridge layouts show the general intent and location of the required shoring. The sites identified for payment under this special provision are described below. Any other shoring used at the Contractor’s option will not be paid for directly, but will be considered subsidiary to the various pay items.

Site 3: Along John Harden Drive from Sta. 132+15 to Sta. 141+21 and along N. James Street from Sta. 210+50 to Sta. 213+19. See maintenance of traffic plans, Stage 1A Step 2.

Site 4: Along T.P. White Drive from Sta. 134+70 to Sta. 136+49. See maintenance of traffic plans, Stage 1A Step 2.

Site 5: Along Highway 67 from Sta. 615+00 to Sta. 635+08. See maintenance of traffic plans, Stage 1B.

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

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

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

Method of Measurement. The design, construction, and removal of the shoring system herein described shall be measured on a lump sum basis for each site.
**SHORING**

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

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoring (Site No. _)</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>
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Subsection 108.02(a) is hereby deleted and the following is substituted therefore:

108.02 Prosecution of Work.

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

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

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

(c) Full Work Order.

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

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

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

(d) CPM Schedule.

(1) General. Prepare and submit to the Engineer a Critical Path Methodology (CPM) schedule in accordance with Section (j) “General Requirements of the Project Schedule” of this special provision utilizing scheduling best practices.
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PROSECUTION AND PROGRESS WITH BID SCHEDULE

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

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

The “Structure of the Project Schedule” document is located on the ArDOT website at https://ardot.gov/divisions/construction/construction-information/ under CPM Schedule Information.

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

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

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

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

(g) Bid Schedule.

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

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

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

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

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

(4) Criteria for Acceptance of the Bid Schedule.

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

The bid schedule shall indicate that the work can be reasonably assumed to be completed in the calendar days bid.

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

(h) Baseline Schedule.
(1) General. The Contractor shall provide the Baseline Schedule to the Engineer as soon as possible after notification of contract award. The Engineer will review the Baseline Schedule per Section (j) “General Requirements of the Project Schedule” of this special provision, and notify the Contractor of its acceptability. The Contractor will not be allowed to start work until the Baseline Schedule has been approved by the Engineer. The contract time will start no later than that specified in the Special Provision “Flexible Beginning of Work - Calendar Day Contract” after the issuance of the work order. No time extension shall be considered for failure to submit an acceptable Baseline Schedule within the time period specified above.
(2) Baseline Schedule Narrative. The schedule narrative shall not be considered notification of delays, requests for change orders, or other issues. The Contractor shall provide a schedule narrative with the Baseline Schedule including the following information and topics as laid out:

- General description of the workflow and plan for completing the project.
- A timeline illustrating the MOT (Staging) plan according to bid documents; including key milestones such as utility turnover dates, migratory bird netting, ROW clearance date, etc.
- A description of the longest path.
- Subcontractors, equipment (full and part time noted), monthly crew staffing plan.
- List of completion dates for all major milestones.
- The work days per week, the number of shifts per day, the number of hours per shift, and the holidays to be observed, and a description of how the schedule accounts for adverse weather days.
- Activities requiring coordination with the Department, utilities, other parties, etc. (external constraints).
- Attachment defining each crew completely, describing the equipment, including number and type, required to carry out the work. The number of crews is to be defined by the Contractor. It is expected that a sufficient number of crews will be developed to correspond to the Contractor's plan to complete the project within the time specified. At a minimum, please include a list containing a legend for all abbreviations/acronyms.

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

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

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

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

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

(3) Criteria for Acceptance of Baseline Schedule. The Engineer will accept a schedule based on the following:
• Baseline Schedule Presentation review meeting.
• Conformance with Section (j) “General Requirements of the Project Schedule” of this special provision and any other contract requirements.

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

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

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

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

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

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

(2) **Assignment of Baseline Schedules.** The following Baseline Schedules shall be assigned prior to submission of schedule updates. The submitted schedule “.xer” backup file shall contain the following assigned Baseline Schedules:
- Project Baseline - assign the approved Baseline Schedule.
- Primary Baseline - assign the approved update from the prior month
- Secondary Baseline - assign the approved update from 2 months prior

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

Failure to attend the scheduled update meeting or submit the schedule update within the specified period may result in the stoppage of work until the Department receives the schedule update and future withholding of estimate payments until the specified evaluation time has elapsed and the Contractor receives approval from the Engineer.
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(4) Update Schedule Narrative. The schedule narrative shall not be considered notification of delays, Requests for Changes Orders, or other issues. A schedule narrative shall be provided with each schedule update including the following information and topics as laid out:

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

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

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

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

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

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

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

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

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

Each activity in the project schedule shall be described by:

• An activity ID (number) utilizing an alphanumeric designation system tied to the traffic control plans, as described in the “Activity ID Structure” section of the “Structure of the Project Schedule” document located on the ArDOT website and that is agreeable to the Engineer. At no time shall an activity ID be changed from one schedule version to another (i.e. from bid schedule to baseline schedule to update schedules and between monthly updates).

• Concise and unique description of the work represented by the activity name with no duplicate activity name within the project schedule as described in the “Activity Naming Convention” section of the “Structure of the Project Schedule” document located on the ArDOT website; and
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- Activity durations in whole days with a maximum of twenty (20) calendar days. Longer durations may be used for non-construction activities (mobilization, submittal preparation, curing, etc.), and other activities mutually agreeable between the Engineer and Contractor.

- An activity duration shall be based on the quantity for the individual work activity divided by a production rate. Activities that have varying production rates may be required to be separated into multiple activities by the Engineer.

- A User Defined Field shall be utilized to assign production rates to their associated activities and resources. The User Defined Fields shall be developed and structured in accordance with the “User Defined Field” section of the “Structure of the Project Schedule” document located on the Arkansas Department of Transportation (ArDOT) website.

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

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

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

- All milestones identified by the Contract shall be reflected as start milestones with a ‘start no earlier than’ constraint or finish milestones with a ‘finish no later than’ constraint.
- Project Start-Start Milestone for work prior to work order.
- (NTP/Work Order Start)-Start Milestone for work after work order.
- Stage Complete-Finish Milestone for each stage of the project (shall not be constrained unless necessary to reflect MOT (Staging) plan)
- Substantial Completion-Finish Milestone to follow all contracted work scope and punch-list activities required for beneficial use. A Project Level “Must Finish By” date shall be applied on Calendar Day and Fixed Completion Date contracts. Note that the project level “Must Finish By” constraint is as-of 12:01 am.
- Project Complete-Finish Milestone to follow all close-out activities after substantial completion.
- Contract Days-No Level of Effort activities are to be used with the exception of a Level of Effort activity used for tracking the planned, actual, and remaining contract days. Relationships to be Start-to-Start (SS) with NTP/Work Order-Start milestone and Finish-to-Finish (FF) with Substantial Completion milestone. This activity will reflect total contract duration and track actual days charged against contract duration.
- Additional milestones used by the Contractor shall be approved by the Engineer.
- Constraints-only constraints associated with the WBS, phasing, staging, milestones, or project completion dates specified in the Contract are allowed. Any constraints to be utilized on the schedule other than the aforementioned dates must be authorized in advance by the Engineer.
- No lags shall be used on Finish-To-Start relationships and no negative lags shall be used at any time.
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- No Start-to-Finish relationships shall be used at any time.
- No activity shall have only Start-to-Start successor relationship(s) or only Finish-to-Finish predecessor relationship(s).
- Critical path shall be determined by the longest path.
- No activity shall contain scope that represents multiple Contractors, trades, or types of work.
- The Contractor shall resource-load the project schedule by assigning every construction activity the appropriate material and equipment resources which align with the Contractor's project plan and directly correlate to and support the Estimate Item Codes (Schedule of Values).
- Only project calendars shall be used. No global calendars may be used. Separate calendars shall be developed and assigned to activities for various Work Types, as appropriate.
- Seasonal weather conditions shall be considered and included in the project schedule for all work influenced by temperature and/or precipitation. Seasonal weather conditions shall be determined by an assessment of average historical climatic conditions. Average historical weather data is available through the National Oceanic and Atmospheric Administration (NOAA), company historical records, or any additional reference the Contractors deems necessary to prepare an accurate schedule. These effects will be simulated through the use of work calendars for each major work type (i.e., earthwork, concrete paving, structures, asphalt, drainage, etc.) for all activities.
- The work calendars shall be updated each month to reflect the actual days worked.
- Total Float is the amount of time that an activity can be delayed from its early start date without delaying the project finish date. Free Float is the amount of time that an activity can be delayed without delaying the early start date of any successor activity. Float time in the project schedule is a shared commodity between the Department and the Contractor. Suppression or consumption of float shall not be allowed, including by use of extended activity durations, dummy activities, unspecified or unnecessary milestones, unnecessary logic ties, or preferential sequencing.

At a minimum, include the following work activities, as applicable:
- Work to be performed by the Contractor, subcontractors, and suppliers.
- Work to be performed by the Department and third parties.
- The project start date, scheduled completion dates, and other milestones required by the Contract, start or finish dates for phases, or site access or availability dates.
- Submittal review and approval activities when applicable, including time for the Department’s approval as specified in the Contract.
- Fabrication, delivery, installation, testing, and similar activities for materials, plants, and equipment.
- If and where directed items shall be included in the schedule as an activity showing the plan quantity being utilized.
- Sampling and testing periods.
- Settlement or surcharge periods.
- Cure periods.
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SPECIAL PROVISION
JOB NO. CA0604
PROSECUTION AND PROGRESS WITH BID SCHEDULE

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

(2) Resource Loading

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

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


(5) Level of Schedule Detail/Submission Requirements. Each project schedule submittal shall include a “.xer” electronic backup file and three (3) plots in .pdf or other format as determined by the Engineer with the activities logically grouped using the Project’s WBS and then by Work Type activity code as set forth in the “WBS” and “Activity Codes” sections of the “Structure of the Project Schedule” document located on the ARDOT website and sorted by start date and total float:
One bar chart plot showing the entire project schedule, with the longest path through the schedule readily discernible; and
The second bar chart plot showing only the longest path;
The third bar chart plot showing a 60-day Look-Ahead schedule, starting with the data date, containing no completed activities.

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

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

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

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

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

(7) Recovery Schedules. If the work is delayed such that the projected finish date of any completion deadline or contract milestone, in the current update schedule, is behind by twenty-eight (28) calendar days, then the Contractor shall provide a Recovery Schedule within seven (7) calendar days, including a recovery plan detailing how the delay will be recovered and the completion deadline(s) achieved, prior to submittal of its next monthly update schedule. The Recovery Schedule shall demonstrate the Contractor’s plan to regain lost progress and achieve all completion deadlines per the Contract Documents.
(8) Change Orders. Any and all change orders affecting schedule durations, sequencing, and/or material, or equipment quantities shall be incorporated into the schedule, whether additive or deductive.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Only Department responsible delays in activities that affect the milestone dates or the contract completion date, as determined by CPM analysis, will be considered for a time extension.
ARKANSAS DEPARTMENT OF TRANSPORTATION
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The Contractor’s plea that the contract time was insufficient is not a valid reason for an extension of time. When the time as extended by the Department falls on a date that is a Sunday or holiday, the Engineer will extend the contract time to the next business day.

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

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

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

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

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

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JOB NO. CA0604

PROSECUTION AND PROGRESS WITH BID SCHEDULE

- Recalculate the current schedule with the fragnet inserted and record this scheduled completion date.
- The difference in the calculated scheduled completion dates between the current schedule and the schedule calculated with a properly inserted and properly composed fragnet is the delay attributable to the changed work. The time extension due, if any, will be based on this delay.

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

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

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

(g) Excusable, Compensable Delays. Excusable, compensable delays are delays that are not the Contractor’s fault or responsibility but are the Department’s fault or responsibility. The Contractor is entitled to a contract time extension and to compensation for delay costs associated with an excusable, compensable delay that affects the longest path. The Department will determine compensation for an excusable, compensable delay. The following are excusable, compensable delays:
  • Delays due to an Engineer-ordered suspension.
  • Delays due to the Department’s neglect.
  • Delays due to subsection 104.02(b) “Significant Changes in the Character of Work” that directly delay the longest path. Compensation will be as allowed under subsection 104.02(b).
  • Delays due to subsection 104.02(c) “Differing Site Conditions” that directly delay the longest path. Compensation will be as allowed under subsection 104.02(c).

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

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

SPECIAL PROVISION

JOB NO. CA0604

AIRPORT CLEARANCE REQUIREMENTS

Project CA0604 is in the vicinity of the Little Rock Air Force Base. The project meets F.A.A. clearance requirements for all equipment that does not extend over nearby trees and overhead utilities, within the entire right-of-way of Job CA0604.

The Contractor is encouraged to contact the Airport Manager at (501) 988-3131 for Little Rock Air Force Base before any construction takes place on the project to resolve any possible conflicts with aircraft operations and coordinate with a possible issuance of “Notice to Airmen” statements.

The Contractor for this project shall not use any equipment that extends above the roadway more than the height of nearby trees and overhead utilities within the Job CA0604 limits without the permission of the F.A.A.

Should the Contractor decide to use equipment that exceeds height restrictions, they shall file a Notice of Proposed Construction with the F.A.A a minimum of 45 days prior to the use of the equipment.

The Contractor shall follow the instructions of the Airport Manager to identify any equipment that will exceed the height restrictions within the limits listed with appropriate warning devices to ensure aircraft safety.

Please contact Tony Evans at (501) 569-2169 with questions regarding the information addressed in this Special Provision.

No direct payment will be made for fulfilling the requirements of this Special Provision, but payment will be considered included in the other contract items.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (G&W)

GENERAL

NOTE: Genesee & Wyoming Railroad Services, Inc. owns Arkansas Midland Railroad (AKMD)

The requirements of this Special Provision are intended to apply to noise barrier wall construction activities on Highway 67, Section 10, Logmile 8.65 at Genesee & Wyoming Railroad’s AKMD U.S. DOT crossing number 934763S, ALMR Sub, RR milepost 332.97 in Jacksonville, Pulaski County, Arkansas. These requirements are in addition to construction details shown on the Plans or other project specifications provided by ARDOT.

Railroad Right-of-Entry, Insurance and Flagging Requirements

This Special Provision applies to noise barrier wall construction activities on this project and supplements the Plans. Before beginning any work on the Railway's right-of-way, the Contractor must contact Mr. Greg Breaston, G&W's Public Projects Manager and Donna Killingsworth for a right-of-entry (ROE), digging, flagging and insurance requirements. Their contact is:

Greg Breaston
Manager, Public Projects
Genesee & Wyoming Railroad Services, Inc.
13901 Sutton Park Drive, Suite 270
Jacksonville, FL 32224
Office: 904-999-3378
Cell: 904-719-4315
greg.breaston@gwrr.com

Donna Killingsworth, MBA
Sr. Manager – Utilities
13901 Sutton Park Dr., S., Suite 270
Jacksonville, FL 32224
donna.killingsworth@gwrr.com
904-900-6286

RAIL TRAFFIC (confirm with Railroad contact):

As reported by FRA, current rail traffic is:
- Average Trains Per Day 1
- Average Train Speed 10 mph
- Passenger Trains Per Day 0
DESCRIPTION: This item shall consist of scheduling the various construction items to maintain traffic and provide an orderly progression of work.

The general sequence of construction for the various stages of work on this project are shown on the maintenance of traffic plans.

The sequence as shown on the maintenance of traffic plans is a general outline for the construction of this project, and in no way is it intended to cover every item in the project. Items not critical to the construction sequence may be constructed in any stage as approved by the Engineer.

PRE-BID - ALTERNATE CONCEPTUAL PROPOSAL

The Contractor may submit for consideration an Alternate Conceptual Proposal (ACP) for sequence of construction to be used as the basis for developing the bid on this project. The ACP for sequence of construction should be submitted to the Program Management Division at pmd@ardot.gov. The deadline to submit an ACP is the Wednesday prior to the scheduled letting date. All ACP’s submitted prior to the deadline will receive a response. The ACP will be held in the strictest confidence by the Department, and the response to the requested ACP will only be made to the Contractor submitting the ACP. The Contractor shall have the written approval of the Engineer before the ACP may be used for bidding purposes.

Upon execution of the contract, the Contractor will be required to submit for review and approval a traffic control plan of comparable detail to the traffic control plans included in the job, showing all traffic control items necessary to accomplish the work. Upon approval of the traffic control plans, the Contractor's ACP shall become the accepted sequence for this project. Any further alterations or deviations from the accepted ACP shall have the written approval of the Engineer. If the Contractor's ACP necessitates additional traffic control devices or other materials beyond the contract amount, such devices and materials shall be provided, maintained, and replaced, if necessary, at no cost to the Department.

POST CONTRACT EXECUTION - ALTERNATE CONCEPTUAL PROPOSAL

The Contractor may submit for consideration an Alternate Conceptual Proposal (ACP) for sequence of construction. If an ACP is approved, the Contractor will be required to submit for review and approval a traffic control plan of comparable detail to the traffic control plans included in the job, showing all traffic control items necessary to accomplish the work. Upon approval of the traffic control plans, the Contractor's ACP shall become the accepted sequence for this project. Any further alterations or deviations from the accepted ACP shall have the written approval of the Engineer. If the Contractor's ACP necessitates additional traffic control devices or other materials beyond the contract amount, such devices and materials shall be provided, maintained, and replaced, if necessary, at no cost to the Department.

There will be no direct payment for fulfilling the requirements of this Special Provision, but compensation will be considered to be included in the price bid for the various contract items.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

EMPLOYMENT REPORTING

The Employment Report form, along with instructions for its use, is available on the Department’s website at http://www.ardot.gov/Labor_Reports/Monthly_Employment_Form.xls. The form is included as Page 2 of this Special Provision as an example.

Monthly information on the number of employees, hours worked and payroll amount will be required on the form. Prime contractors are responsible for the submission of each month’s report which will include employment information for all subcontractors and lower-tier subcontractors.

A separate report is required each calendar month for each project. The Prime contractor is responsible for ensuring that each month’s report is signed by a payroll official of the Prime Contractor and received by the Department’s Resident Engineer within seven (7) business days following the end of each calendar month being reported.

A scanned copy of the signed report may be e-mailed to the Resident Engineer or transmitted by fax. Do not mail the signed report since it may not reach the Resident Engineer within seven business days.

Failure to submit the required reports may result in contract sanctions, including withholding progress payments. There will be no separate pay item for this work.
### Employment Data

<table>
<thead>
<tr>
<th>Prime Contractor:</th>
<th>Number of Employees</th>
<th>Total Hours</th>
<th>Total Payroll Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcontractors:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Totals           | -                   | -           | -                   |

**Arkansas Department of Transportation Employment Report**

**Report Month:** (mm/yyyy)  
**Job Number:**

**Prime Contractor:**

**Subcontractors:**

**PREPARED BY (Payroll Official):**

**Signature:**

**Title:**

**DATE:**
1. General. The process for bidding will take into account not only the contract amount bid but also the bidder's stated delivery time in which the Specified Site Use Work will be substantially complete. This method shall be used to determine the successful bidder and to establish the contract time (calendar days). It shall not be used to determine the award amount nor final payment to the Contractor when the project is completed.

2. Definition of Terms. (a) Specified Site Use Work. The specified site use work, referred to herein as Part C, shall consist of all items of work in the Contract.

(b) Contract Amount. The summation of the products of the quantities shown in the bid schedule multiplied by the unit bid price.

(c) Calendar day. As defined in Subsection 101.01 of the Standard Specifications. Calendar days will be assessed in accordance with the contract Special Provision “Prosecution and Progress With Bid Schedule”.

(d) Contract Time. The number of calendar days established by the bidder to complete the project.

(e) Substantially Complete. The date at which time charges cease due to the completion of all pay items. The Engineer will be the sole authority in determining when the work is substantially complete. Part C Site Use Work will be considered complete on this date.

(f) Daily Road User Cost. The amount which represents the average daily cost to the road user, including but not limited to, user delay costs, vehicle operating costs, crash costs, and emission costs. The daily road user cost for Part C is $70,000.

(g) Bid Site Use Time. The number of calendar days specified in the bid by the bidder as the time required to substantially complete the Specified Site Use Work for Part C.

(h) Punch List. A list of items and/or areas of the project requiring correction, replacement, repair, or general cleanup which is furnished by the Engineer following the declaration of the project as Substantially Complete.

3. Preparation of Proposal. The bidder shall establish the number of calendar days to be used to substantially complete the Specified Site Use Work for Part C.

The product of the number of calendar days established by the bidder for Part C multiplied by the daily road user cost of $70,000 per calendar day will be added to the contract amount bid. The sum of the two amounts will be the amount used for consideration of bids for award.
4. Consideration of Bids. Each bid submitted shall consist of two parts:

(A) The Contract amount.

(C) Total number of calendar days proposed by the bidder to substantially complete the Specified Site Use Work for Part C.

The successful bid will then be determined by the Department as the lowest combination of (A) and (C) according to the following formula:

\[
(A) + [(C) \times (\text{daily road user cost of $70,000})] = \text{Bid amount for award consideration.}
\]

The preceding formula shall be used only to determine the successful bidder and shall not be used to determine the contract award amount nor final payment to the Contractor, except as may be adjusted under sections 6 and 7 below.

5. Assessment of Site Use Time. Site use time will begin in accordance with contract time detailed in the special provision “Flexible Beginning of Work – Calendar Day Contract”.

Unless an emergency is declared or unless allowed by other job provisions, the Contractor shall not perform work that requires inspection on Sundays, legal holidays designated in Subsection 101.01 of the Standard Specifications, Edition of 2014, and Monday following a holiday on Sunday or Friday preceding a holiday on Saturday. If the Commission declares Friday following Thanksgiving Day as a Departmental holiday, the Contractor shall not perform work that requires inspection on this day. These days will be charged in a “Calendar Day” contract.

Extensions of the Bid Site Use Time for Part C will be granted ONLY for the following reasons:

(a) The work has been delayed by any act or omission of the Commission. This includes suspension of the work when the suspension is not the fault of the Contractor.

(b) Change Orders affecting the work that results in additional time being required to complete the Specified Site Use Work.

Requests for extension of the Bid Site Use Time shall be made in writing and shall state the reasons for the request and identify the specific days for which extension is requested.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT

6. Early Completion of Specified Site Use Work. The Contractor will be paid $70,000 for each calendar day the Specified Site Use Work is substantially complete before the number of calendar days stated by the Contractor in the bid, including extensions granted in accordance with paragraph 5 above. The maximum number of calendar days for which this payment will be made is 65 days. Payment for early completion will be made after all items identified on the punch list have been completed to the satisfaction of the Engineer.

7. Failure to Substantially Complete the Specified Site Use Work in the Time Bid. Failure to substantially complete the Specified Site Use Work within the number of calendar days stated by the Contractor in the bid, including extensions granted in accordance with paragraph 5 above, will result in the Daily Road User Cost of $70,000 being assessed for every calendar day in excess of the stated number, up to the time in which the Specified Site Use Work is substantially complete.

This assessment will be deducted from any compensation due the Contractor or recovered if sufficient compensation is not due.

The Engineer will be the sole authority in determining when the Specified Site Use Work is substantially complete.

8. Contract Time and Liquidated Damages. Determination of calendar days charged, extensions of Contract Time, and assessment of liquidated damages for failure to complete all work within the Contract Time limit will be made in accordance with the Standard Specifications Section 108. Liquidated Damages under Section 108 of the Standard Specifications are separate and in addition to the Daily Road User Cost assessed under this Special Provision.
PARTNERING REQUIREMENTS

Section 104 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added to subsection 104.01:

The Department encourages on this project the establishment and use of a voluntary cohesive partnership agreement between the Department and its Prime Contractor and subcontractors. Toward this end, a partnership may be structured between these parties to draw on the strengths of each to identify and achieve their mutual goals. The objectives of this are:

- Effective contract performance,
- Efficient contract performance,
- Completion of the project within budget,
- Completion of the project on schedule, and
- Construction of the project in accordance with the contract.

This partnership will be shared equally between the Department and the Prime contractor and subcontractors. Participation in this "partnering" concept is voluntary on this project. The Prime Contractor and approved subcontractors shall bear the costs associated with their personnel's time while participating in seminars, workshops, and meetings for successful "partnering" on this project.

In order to obtain a successful partnering relationship and agreement, the Department shall arrange for a partnership development/team building workshop prior to the preconstruction conference. Persons required to attend this workshop are:

- Contractor and approved Subcontractor President, Vice President, or General Superintendent,
- Contractor and approved Subcontractor project Superintendent,
- Department District Engineer,
- Department Resident Engineer,
- Appropriate Department Design personnel,
- Department Staff Construction Engineer, and
- Department Area Materials Engineer.

The Federal Highway Administration and other interested parties shall be invited to attend and participate, but their attendance will not be required.

The Department and/or the Contractor may bring other personnel at their option.

Follow-up meetings shall be held periodically throughout the duration of the contract. The establishment of a partnership charter on this project will not change the legal relationship of the Department and the other participating parties to the contract nor relieve either party from any of the terms of the contract.

The partnership agreement shall NOT constitute authority to change the contract, plans, or Specifications.
GENERAL: This special provision limits the temporary construction operations in Special Flood Hazard Areas (SFHA) as required by the National Flood Insurance Program (NFIP).

Temporary construction operations include all work and material necessary to access and construct the permanent bridge(s), culvert(s) and roadway embankment within the SFHA. These operations may include work ramps, haul roads, temporary crossings, detour roads, levees, diversion channels, retaining walls, cofferdams, forms, storage of materials, storage of large equipment, and other related work.

This project crosses a regulatory floodway, regulatory floodplain, or SFHA as shown on the community’s Flood Insurance Rate Map published by the FEMA. The regulatory floodway, regulatory floodplain, or SFHA limits are shown on the plan and profile drawings.

The project is designed to comply with the NFIP’s regulations set forth in Title 44, Chapter 1, Parts 59-77, of the United States Code of Federal Regulations (CFR).

The following special conditions must be complied with:

- Temporary operations are to be used during the low flow season when possible.

- Temporary operations shall be designed and constructed so as not to result in a significant increase in flood elevations within the community during passage of a major flood.

- Temporary operations shall not obstruct a significant portion of an existing or proposed waterway opening.

- All temporary operations shall meet the requirements of the Corps of Engineers’ Section 404 Permit issued for this project.

- All temporary fills and temporary obstructions to the existing or proposed bridge(s) or box culvert(s) must be removed in their entirety, and the affected areas returned to their preconstruction or designed elevation and condition.

- The contractor is responsible for preventing equipment and materials within the floodplain from becoming buoyant and floating downstream during a significant flood event. In the event this flood starts to occur, the contractor shall remove and/or anchor materials and equipment by means approved by the Engineer at the Preconstruction Conference.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT: All work, including labor, materials, tools, and equipment necessary to complete the requirements of this special provision shall not be paid for directly, but will be considered subsidiary to other items in the contract.
STORM WATER POLLUTION PREVENTION PLAN

SPECIAL PROVISION

NOT RECEIVED YET
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0604

SEQUENCE OF CONSTRUCTION

DESCRIPTION: This item shall consist of scheduling of the various construction items to maintain traffic and provide an orderly progression of work.

The general sequence of construction for the various stages of work on this project are shown on the maintenance of traffic plans.

The sequence as shown on the maintenance of traffic plans is a general outline for the construction of this project, and in no way is it intended to cover every item in the project. Items not critical to the construction sequence may be constructed in any stage as approved by the Resident Engineer.

The Contractor may submit for consideration an alternate proposal for sequence of construction. If an alternate sequence of construction is proposed, the Contractor will be required to submit for review and approval a traffic control plan of comparable detail to the traffic control plans included in the job, showing all traffic control items necessary to accomplish the work. If the Contractor’s sequence of construction is approved, it shall become the accepted sequence for this project. Any alteration or deviation from the accepted sequence for this project shall have the written approval of the Engineer. If the Contractor’s sequence of construction necessitates additional traffic control devices or other materials beyond the contract amount, such devices and materials shall be provided, maintained and replaced, if necessary, at no cost to the Department.

There will be no direct payment for fulfilling the requirements of this Special Provision, but compensation will be considered to be included in the price bid for the various contract items.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB CA0604 (Pulaski County)

UTILITY ADJUSTMENTS

Utility facilities at the approximate locations noted in Appendix A will be removed, relocated and/or adjusted in accordance with separate agreements between the Highway Department and the respective utility owners.

In accordance with Subsection 105.07, Cooperation with Utilities, of the Standard Specifications, Edition of 2014, the Contractor is forewarned that such work may be underway concurrently with the work under this contract.

1. Owner – CenturyLink
   Contact: James Sartor, 214-287-4341, 4512 Burrow Drive, North Little Rock, AR 72116

CenturyLink was issued a Work Order on April 26, 2022 with an anticipated completion date of November 30, 2022.

2. Owner – Comcast
   Contact: Richard Hill, 501-748-1942, 2714 South Shackleford, Little Rock, AR 72205

It is anticipated that Comcast will be issued a Work Order by June 17, 2022 with an anticipated completion date of December 30, 2022.

3. Owner – Entergy Arkansas, Inc. (Distribution)
   Contact: Tammy Carter, 501-626-0710 900 S. Louisiana St., Little Rock, AR 72202

Entergy Arkansas, Inc. (Distribution) was issued a Work Order on August 4, 2021 with an anticipated completion date of August 28, 2022.

4. Owner – Jacksonville Water Commission
   Contact: Sal Pappalardo, 501-620-9112, 1900 Marshall Road, Jacksonville, AR 72076

Jacksonville Water Commission was issued a Work Order on December 15, 2022 with an anticipated completion date of December 30, 2022.

5. Owner – Jacksonville Sewer Commission
   Contact: Thea Hughes, 501-982-0581, 248 Cloverdale Rd., Jacksonville, AR 72076

Jacksonville Sewer Commission was issued a Work Order on December 15, 2021 with an anticipated completion date of December 30, 2022.
6. Owner - Ritter Communications  
   Contact: Wayne Thompson, 870-919-1374, 30 Elm St. Marked Tree, AR 72365  
Ritter Communications was issued a Work Order on April 26, 2022 with an anticipated completion date of December 10, 2022.

7. Owner - Suddenlink Communications  
   Contact: Randy Oliger, 501-519-4696, 1421 S. Second Street, Cabot, AR 72023  
It is anticipated that Suddenlink Communications will be issued a Work Order by June 15, 2022 with an estimated completion date of December 30, 2022.

8. Owner – Summit Utilities (formerly CenterPoint Energy)  
   Contact: Adam Gober, 501-377-4737, 401 West Capitol, Suite 600, Little Rock, AR 72201  
Summit Utilities (formerly CenterPoint Energy) was issued a Work Order on December 15, 2021 with an estimated completion date of December 30, 2022.

9. Owner – Windstream Communications  
   Contact: Joel Oestrenga, 262-370-3737, 14561 East US 27, Branford, FL 32008  
It is anticipated that Windstream Communications will be issued a Work Order by July 6, 2022 with an estimated completion date of December 30, 2022.

The completion dates were based on information received from the utility companies and the most current information available at this time; therefore, the dates are subject to change.

In case there is a delay beyond the estimated completion dates as set forth above, and should such delay necessarily cause a delay in the Contractor’s prosecution of the work, an equitable extension of contract time will be granted to the Contractor. No claim for extra compensation will be allowed, however, because of such delay.

An approved Highway Utility Agreement, a letter of commitment or other appropriate document evidencing satisfactory arrangements for the orderly removal, relocation, and/or adjustment of separately-owned utility facilities located within the construction limits and interfering with the construction under this contract is on file with the Arkansas Department of Transportation.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB CA0604 (Pulaski County)

UTILITY ADJUSTMENTS

The Contractor is required to make every effort to locate buried utilities including, but not limited to, calling Arkansas One Call Center (800) 482-8998.
## Approximate Utility Locations

<table>
<thead>
<tr>
<th>Utility Owner</th>
<th>Facility Type</th>
<th>Location</th>
<th>Station Number</th>
<th>Est. Comp. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHE</td>
<td>Along N. 1st St.</td>
<td>298+50RT-300+50RT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHE</td>
<td>Crossing N. 1st St. diagonally</td>
<td>300+50RT-302+50LT</td>
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<tr>
<td>OHE</td>
<td>Along N. 1st St.</td>
<td>302+50LT-309+25LT</td>
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<tr>
<td>OHE</td>
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<td>309+25LT-310+60RT</td>
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<tr>
<td>OHE</td>
<td>Along N. 1st St.</td>
<td>310+60RT-312+12RT</td>
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<tr>
<td>OHE</td>
<td>Crossing N. 1st St. diagonally</td>
<td>312+00RT-314+60LT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHE</td>
<td>Along N. 1st St.</td>
<td>314+60LT-322+25LT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHE</td>
<td>Crossing N. 1st St. perpendicularly</td>
<td>322-25LT = 167+00 TP White</td>
<td>12/30/2022</td>
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</tr>
<tr>
<td>OHE</td>
<td>Along N. 1st St.</td>
<td>197+00RT-200+00RT (200+00 N. 1st St. = 200+00 TP White)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHE</td>
<td>Along TP White</td>
<td>200+00RT-218+00RT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHE</td>
<td>Along John Harden</td>
<td>31+50LT-34+00LT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Comcast Communications

| OHE           | Along John Harden | 606+00LT-617+00LT |                |                |
| OHE           | Crossing John Harden diagonally | 613+35LT-615+65RT |                |                |
| OHE           | Along TP White | 612+40RT-624+20RT |                |                |
| OHE           | Along Jefferson Davis | 625+00LT-627+00LT |                |                |
| OHE           | Along TP White | 632+00RT-640+90RT |                |                |
| OHE           | Along TP White | 643+80RT-648+20RT |                |                |
| OHE           | Along John Harden | 642+25LT-653+30LT |                |                |
| OHE           | Crossing Gregory St. diagonally | 799+80RT-801+65LT |                |                |
| OHE           | Along Gregory St. | 801+65LT-816+10LT |                |                |
| OHE           | Crossing Gregory St. diagonally | 812+50RT-814+25LT |                |                |
| OHE           | Along Gregory St. | 799+80RT-803+40RT |                |                |
| OHE           | Crossing Gregory St. diagonally | 803+40RT-804+60LT |                |                |
| OHE           | Along N. Bailey | 10+30RT-14+80RT |                |                |
| OHE           | Crossing N. Bailey diagonally | 14+80RT-15+60LT |                |                |
| OHE           | Along N. Bailey | 15+60LT-18+0RT |                |                |
| OHE           | Along N. 1st St. | 18+00RT-20+35RT |                |                |
| OHE           | Along TP White | 304+00LT-307+15LT |                |                |
| OHE           | Along TP White | 181+45RT-188+60RT |                |                |
| OHE           | Running east between TP White-N. 1st St. | TP White 184+65LT - N. 1st St 314+50LT (67/167 Sta. 668+50) | 8/28/2022 |                |
| OHE           | Crossing N. 1st St. diagonally | 312+00RT-314+45LT |                |                |
| OHE           | Crossing N. 1st St. perpendicularly | 314+45LT-317+00LT |                |                |
| OHE           | Along N. 1st St. | 314+45LT-322+20LT |                |                |

### Entergy Distribution

<p>| OHE           | Crossing Hwy. 67/167 perpendicularly | 682+75 |                |                |
| OHE           | Crossing N. 1st St. diagonally | 322+20LT-322+35RT |                |                |
| OHE           | Along TP White | 197+10RT-206+30RT |                |                |
| OHE           | Along N. 1st St. | 204+55LT-220+25LT |                |                |
| OHE           | Crossing Hwy. 67/167 perpendicularly | 703+20 (between TP White 216+80RT-N. 1st St 212+30LT) |                |                |
| OHE           | Crossing John Harden perpendicularly | 31+80 |                |                |
| OHE           | Along John Harden | 31+80LT-36+00LT |                |                |
| OHE           | Crossing N. 1st St. diagonally | 217+60RT-218+35LT |                |                |
| OHE           | Crossing N. 1st St. diagonally | 316+30LT-315+50RT |                |                |
| OHE           | Along JP Wright | 14+30LT-16+20LT |                |                |</p>
<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>15&quot; SS</td>
<td>67/167 Crossing Diagonally</td>
<td>608+50LT-610+70RT</td>
</tr>
<tr>
<td>6&quot; SS</td>
<td>Off TP White</td>
<td>139+30RT 89' (Hill St)</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along John Harden Drive</td>
<td>133+30LT 78' (N. Jeff Davis Ave)</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>On TP White</td>
<td>155+10RT-159+85RT</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along Gregory St.</td>
<td>803+55RT-803+70RT</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Crossing Gregory St. Diagonally</td>
<td>803+55RT-803+80LT</td>
</tr>
<tr>
<td>12&quot; SS</td>
<td>Along N. Bailey</td>
<td>10+30RT-17+45RT</td>
</tr>
<tr>
<td>12&quot; SS</td>
<td>Along south side Parish St. (crossing Bailey)</td>
<td>16+90RT (Bailey Stationing)</td>
</tr>
<tr>
<td>10&quot; SS</td>
<td>Trending Eastward along TP White</td>
<td>183+25RT-185+00RT</td>
</tr>
<tr>
<td>10&quot; SS (Encased)</td>
<td>Crossing 67/167</td>
<td>674+10</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along 67/167</td>
<td>673+30LT-676+40LT</td>
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<tr>
<td>8&quot; SS</td>
<td>Along John Harden Drive</td>
<td>181+70LT-182+10LT</td>
</tr>
<tr>
<td>10&quot; SS</td>
<td>Along John Harden Drive</td>
<td>182+10LT-185+00LT</td>
</tr>
<tr>
<td>10&quot; SS</td>
<td>Along John Harden Drive</td>
<td>179+80LT-183+00LT</td>
</tr>
<tr>
<td>10&quot; SS</td>
<td>Along JP Wright</td>
<td>12+85LT-16+40LT</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along N. 1st Street</td>
<td>316+30LT-318+00</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along N. 1st Street</td>
<td>316+30RT-319+00RT</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along John Harden Drive</td>
<td>206+10LT-220+10LT</td>
</tr>
<tr>
<td>2&quot; FM</td>
<td>Crossing John Harden Dr. diagonally</td>
<td>215+15</td>
</tr>
<tr>
<td>2&quot; FM</td>
<td>Crossing John Harden Dr. diagonally</td>
<td>215+50</td>
</tr>
<tr>
<td>2&quot; FM</td>
<td>Crossing John Harden Dr. diagonally</td>
<td>215+55</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Crossing John Harden Dr. diagonally</td>
<td>219+40LT-219+60RT</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Along N. 1st Street</td>
<td>196+90RT-201+00RT</td>
</tr>
<tr>
<td>8&quot; SS</td>
<td>Crossing Gregory St. (Future)</td>
<td>814+15</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Along John Harden Drive</td>
<td>110+60LT-114+96LT</td>
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<tr>
<td>6&quot; Water Line</td>
<td>Along John Harden Drive</td>
<td>121+45LT-132+75LT</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Crossing John Harden Drive Diagonally</td>
<td>120+70LT-121+55RT</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Along John Harden Drive</td>
<td>148+00LT-167+50LT</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Along Gregory Street</td>
<td>800+00RT-806+80RT</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Along Gregory Street</td>
<td>802+80LT-803+55LT</td>
</tr>
<tr>
<td>4&quot; Water Line</td>
<td>Along North Bailey</td>
<td>10+30LT-17+00LT</td>
</tr>
<tr>
<td>8&quot; Water Line</td>
<td>Crossing Parish</td>
<td>17+00 (N. Bailey Sta.)</td>
</tr>
<tr>
<td>8&quot; Water Line</td>
<td>Along Parish</td>
<td>17+00 RT-23+70RT (N. Bailey Sta.)</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Along John Harden Drive</td>
<td>172+40LT-182+20LT</td>
</tr>
<tr>
<td>8&quot; &amp; 16&quot; Water Lines</td>
<td>Along John Harden Drive</td>
<td>182+20LT-193+50LT</td>
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<tr>
<td>16&quot; Water Line</td>
<td>Crossing Vandenberg Blvd. perpendicularly</td>
<td>111+10</td>
</tr>
<tr>
<td>8&quot; Water Line</td>
<td>Crossing Vandenberg Blvd. perpendicularly</td>
<td>111+45</td>
</tr>
<tr>
<td>16&quot; Water Line</td>
<td>Along Vandenberg Blvd.</td>
<td>111+10LT-113+00LT</td>
</tr>
<tr>
<td>8&quot; Water Line</td>
<td>Along Vandenberg Blvd.</td>
<td>111+45LT-113+00LT</td>
</tr>
<tr>
<td>8&quot; &amp; 16&quot; Water Line</td>
<td>John Harden Drive/N.1st St.</td>
<td>193+50LT-201+65LT</td>
</tr>
<tr>
<td>8&quot; &amp; 16&quot; Water Line</td>
<td>John Harden Drive/N.1st St.</td>
<td>201+65LT-209+35LT</td>
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<tr>
<td>6&quot; Water Line</td>
<td>John Harden Drive/N.1st St.</td>
<td>208+00LT-218+30LT</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>John Harden /Crossing N. 1st St.</td>
<td>218+40</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Along N.1st St.</td>
<td>218+40RT-220+00RT</td>
</tr>
<tr>
<td>16&quot; Water Line</td>
<td>Crossing N. 1st St. perpendicularly</td>
<td>213+20</td>
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<tr>
<td>16&quot; Water Line</td>
<td>John Harden Dr./N. 1st St.</td>
<td>213+05RT-213+20RT</td>
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<tr>
<td>6&quot; Water Line</td>
<td>Service line at John Harden</td>
<td>198+20LT</td>
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<tr>
<td>6&quot; Water Line</td>
<td>Crossing John Harden perpendicularly</td>
<td>209+05</td>
</tr>
<tr>
<td>2&quot; Water Line</td>
<td>Along N. Hospital</td>
<td>112+45LT-113+70LT</td>
</tr>
<tr>
<td>4&quot; Water Line</td>
<td>Along N. Hospital</td>
<td>113+70RT-118+30RT</td>
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<tr>
<td>6&quot; Water Line</td>
<td>Along N. Hospital Running West</td>
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<td>Crossing N. Bailey diagonally</td>
<td>0+54LT-1+95RT</td>
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<td>Along N. Bailey</td>
<td>1+95RT-4+50RT</td>
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<td>Along TP White</td>
<td>159+30RT-170+45RT</td>
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<td>8&quot; Water Line</td>
<td>Along Gregory Street</td>
<td>811+00RT-814+50RT</td>
</tr>
<tr>
<td>6&quot; Water Line</td>
<td>Crossing Gregory St. perpendicularly</td>
<td>814+00</td>
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<td>814+50</td>
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<td>Crossing Gregory St. diagonally</td>
<td>814+45RT-814+60LT</td>
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<tr>
<td>12&quot; Water Line</td>
<td>Along N. 1st St.</td>
<td>300+90LT-305+80LT</td>
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<tr>
<td>14&quot; Water Line</td>
<td>Along N. 1st St. running parallel to drainage structure</td>
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<td>Along N. 1st St. 240° LT Crossing drainage structure</td>
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<td>N. 1st St. CL to Ditch</td>
<td>314+75LT</td>
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<tr>
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<td>N. 1st St. 240° to east</td>
<td>314+75LT</td>
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<tr>
<td>2&quot; Water Line</td>
<td>Along N. 1st St.</td>
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<tr>
<td>6&quot; Water Line</td>
<td>N. 1st St. running 200° parallel to south side of drainage structure</td>
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<tr>
<td>2&quot; Water Line</td>
<td>Along N. 1st St.</td>
<td>317+20LT-318+80LT</td>
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<td>6&quot; Water Line</td>
<td>Along N. 1st St.</td>
<td>315+00RT-317+80RT</td>
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<tr>
<td>8&quot; Water Line</td>
<td>Along John Harden Drive</td>
<td>32+45LT-48+90LT</td>
</tr>
<tr>
<td>8&quot; Water Line</td>
<td>Along John Harden Drive</td>
<td>32+45LT-48+90LT</td>
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</tbody>
</table>

Jacksonville Water Commission

12/30/2022
<table>
<thead>
<tr>
<th>Lumen (CenturyLink)</th>
<th>UGFO</th>
<th>Crossing James St. diagonally</th>
<th>204+50LT-206+00RT</th>
</tr>
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<tbody>
<tr>
<td>UGFO</td>
<td>Along James St.</td>
<td>201+00LT-204+50LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along TP White</td>
<td>137+50RT-194+00RT</td>
<td></td>
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<tr>
<td>UGFO</td>
<td>Along TP White</td>
<td>194+00RT-220+00RT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along Gregory St.</td>
<td>800+00RT-803+80RT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along N. Bailey St.</td>
<td>10+00RT-14+80RT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
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<td>14+80RT-17+00LT</td>
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<tr>
<td>UGFO</td>
<td>Along N. Bailey St.</td>
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</tr>
<tr>
<td>UGFO</td>
<td>Crossing N. Bailey diagonally</td>
<td>23+50RT-24+50LT</td>
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<tr>
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<td>Along John Harden</td>
<td>176+50LT-183+00LT</td>
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<td>Along John Harden</td>
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<td>UGFO</td>
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<tr>
<td>OHC</td>
<td>Crossing Hwy. 67/167 perpendicularly</td>
<td>627+50</td>
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<table>
<thead>
<tr>
<th>Ritter Communications</th>
<th>OHFO</th>
<th>Along John Harden</th>
<th>113+80LT-121+60LT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHFO</td>
<td>Along John Harden</td>
<td>192+00LT-199+00LT (196+00LT John Harden &lt;20+50LT James St.)</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along James St.</td>
<td>210+60LT-219+40LT</td>
<td></td>
</tr>
<tr>
<td>OHFO</td>
<td>Crossing Gregory St. diagonally</td>
<td>799+80RT-801+70LT</td>
<td></td>
</tr>
<tr>
<td>OHFO</td>
<td>Along Gregory St.</td>
<td>801+70LT-616+00LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Crossing Bailey Ave. diagonally</td>
<td>10+00RT-15+00LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along N. Bailey Ave.</td>
<td>10+00RT-15+00RT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along N. Bailey Ave.</td>
<td>15+00LT-17+25LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along N. Bailey Ave.</td>
<td>17+25RT-23+15LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Crossing N. Bailey Ave. diagonally</td>
<td>23+15RT-24+15LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along John Harden</td>
<td>176+40LT-191+22LT</td>
<td></td>
</tr>
<tr>
<td>OHFO</td>
<td>Along John Harden</td>
<td>191+22LT-186+00LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along John Harden</td>
<td>196+00LT-186+00LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Crossing N. 1st St. diagonally</td>
<td>211+25RT-213+50LT</td>
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<tr>
<td>UGFO</td>
<td>Along John Harden</td>
<td>30+00LT-32+85LT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along N. 1st St.</td>
<td>304+00LT-309+10LT</td>
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</tr>
<tr>
<td>OHFO</td>
<td>Crossing N. 1st St. diagonally</td>
<td>309+00LT-310+85RT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along N. 1st St.</td>
<td>310+85RT-324+00RT (324+00 N. 1st St. = 199+00 TP White)</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Along TP White</td>
<td>199+00RT-216+80RT</td>
<td></td>
</tr>
<tr>
<td>UGFO</td>
<td>Crossing Hwy. 67/167 perpendicularly</td>
<td>Sta. 703+00</td>
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<tr>
<td>Suddenlink Communications</td>
<td>12/30/2022</td>
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<tr>
<td>OHE Along N. 1st St.</td>
<td>208+50RT-300+50RT</td>
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</tr>
<tr>
<td>OHE Crossing N. 1st St.</td>
<td>300+50RT-302+50LT</td>
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<td></td>
</tr>
<tr>
<td>OHE Along N. 1st St.</td>
<td>302+50LT-309+25LT</td>
<td></td>
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<tr>
<td>OHE Crossing N. 1st St.</td>
<td>309+25LT-310+60RT</td>
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<tr>
<td>OHE Along N. 1st St.</td>
<td>310+60RT-312+12RT</td>
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<tr>
<td>OHE Crossing N. 1st St.</td>
<td>312+00RT-314+60LT</td>
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<tr>
<td>OHE Along N. 1st St.</td>
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<tr>
<td>OHE Crossing N. 1st St.</td>
<td>322+25LT-167+00 N. 1st St.</td>
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<tr>
<td>OHE Along N. 1st St.</td>
<td>197+00RT-200+00RT (200+00 N. 1st St. = TP White)</td>
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</tr>
<tr>
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<td>682+75</td>
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<tr>
<td>UGE Along John Harden</td>
<td>175+00LT-191+25LT</td>
<td></td>
<td></td>
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<tr>
<td>OHE Along N. Bailey</td>
<td>10+00RT-23+00RT</td>
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</tr>
<tr>
<td>OHE Along N. 1st St.</td>
<td>199+00RT-217+00RT</td>
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<tr>
<td>UGE Crossing Hwy. 67/167 perpendicularly</td>
<td>703+20</td>
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</tr>
<tr>
<td>UGE Crossing N. 1st St.</td>
<td>212+RT-212+50LT</td>
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<tr>
<td>UGE Along N. 1st St.</td>
<td>212+50LT-219+60LT</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Summit Utilities (formerly CenterPoint Energy)</th>
<th>12/30/2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; HP Gas Line Along Marshall Rd.</td>
<td>67+00-76+00</td>
</tr>
<tr>
<td>4&quot; HP Gas Line Along W. Main St.</td>
<td>195+00-205+00</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Crossing John Harden diagonally</td>
<td>110+00RT-112+00LT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along John Harden</td>
<td>110+00RT-121+00RT</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Along Braden St.</td>
<td>110+00RT-112+00RT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along N. James St.</td>
<td>203+00RT-205+00RT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along N. James St.</td>
<td>200+00LT-203+00LT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along N. Bailey Blvd</td>
<td>159+50 TP White Int.</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Along Gregory St.</td>
<td>600+00LT-800+00LT=168+00 TP White Int.</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Along Gregory St.</td>
<td>600+00RT-604+00RT=168+00 TP White Int.</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Crossing James St. diagonally</td>
<td>202+70LT-203+00RT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along TP White</td>
<td>137+00RT-139+50RT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along N. Bailey</td>
<td>10+00RT-14+60RT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along N. Bailey</td>
<td>10+50LT-15+50LT</td>
</tr>
<tr>
<td>4&quot; HP Gas Line Along John Harden</td>
<td>168+00LT-194+50LT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along John Harden</td>
<td>194+50LT-196+20LT</td>
</tr>
<tr>
<td>4&quot; HP Gas Line Crossing John Harden perpendicularly</td>
<td>192+40</td>
</tr>
<tr>
<td>6&quot; HP Gas Line Along John Harden</td>
<td>196+20LT-197+50LT</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Along John Harden</td>
<td>197+50LT-220+00LT (NI.1st St. 211+00 John Harden 211+00)</td>
</tr>
<tr>
<td>2&quot; IP Gas Line Between Hwy 67-167/S161N at</td>
<td>178+00-185+30</td>
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<tr>
<td>John Harden</td>
<td></td>
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<tr>
<td>4&quot; IP Gas Line Along Hwy 161 &amp; Loop Rd Inter.</td>
<td>185+50-192+00</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Along Vandenberg Blvd</td>
<td>113+00RT-117+20RT</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Crossing Vandenberg Blvd.</td>
<td>117+20</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Along TP White</td>
<td>200+30LT-201+75LT</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Crossing TP White perpendicularly</td>
<td>201+75</td>
</tr>
<tr>
<td>4&quot; IP Gas Line Along TP White</td>
<td>197+RT-210+50RT</td>
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</tbody>
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<tr>
<th>Windstream Communications</th>
<th>12/30/2022</th>
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<tbody>
<tr>
<td>UGE Along N. 1st St.</td>
<td>314+25RT N. 1st St. - 322+00 RT 332+00 RT N. 1st St. = 200+00RT TP White)</td>
</tr>
<tr>
<td>UGE Along TP White</td>
<td>200+00RT-208+50RT TP White</td>
</tr>
<tr>
<td>UGE Crossing Hwy. 67/167</td>
<td>684+42</td>
</tr>
<tr>
<td>UGE Along John Harden</td>
<td>202+75LT-215+75LT</td>
</tr>
</tbody>
</table>
As specified in the Contract, liquidated damages for this project will be as shown in the following tables:

### WORKING DAY PROJECTS

<table>
<thead>
<tr>
<th>ORIGINAL CONTRACT AMOUNT</th>
<th>RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM MORE THAN</td>
<td>TO AND INCLUDING</td>
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</table>

### FIXED DATE PROJECTS

<table>
<thead>
<tr>
<th>ORIGINAL CONTRACT AMOUNT</th>
<th>RATE</th>
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</thead>
<tbody>
<tr>
<td>FROM MORE THAN</td>
<td>TO AND INCLUDING</td>
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<td>10,000,000</td>
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</tbody>
</table>
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

CONTRACTOR'S LICENSE

Section 102 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The third paragraph of Subsection 102.01, Prequalification of Bidders, is hereby deleted and the following substituted thereof:

The attention of prospective bidders is directed to Ark. Code Ann. §17-25-101 et seq., Act 150 of the 1965 Acts of Arkansas, being an "Act Regulating the Practice of Contracting in the State of Arkansas", and any subsequent amendments made thereto. When the work offered is financed in whole with State funds and is estimated to cost $50,000 or more, the prospective bidder must show evidence of its license and evidence of registration or license of its subcontractors with the Contractors Licensing Board for the State of Arkansas before being furnished with a proposal form.

The third paragraph of Subsection 108.01, Subletting of Contract, is hereby deleted and the following substituted thereof:

It shall be the responsibility of the Contractor to determine that all parties performing work amounting to $50,000 or more are currently licensed or registered by the Contractors Licensing Board for the State of Arkansas.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
DEPARTMENT NAME CHANGE

All references to the Arkansas State Highway and Transportation Department contained within the Standard Specifications for Highway Construction (Edition of 2014), the Qualified Products List, the Manual of Field Sampling and Testing Procedures, plan sheets, Supplemental Specifications, and all Special Provisions contained in this proposal are hereby deleted and replaced with the title of Arkansas Department of Transportation.

All references to AHTD contained within the Standard Specifications for Highway Construction (Edition of 2014), the Qualified Products List, the Manual of Field Sampling and Testing Procedures, plan sheets, Supplemental Specifications, and all Special Provisions contained in this proposal are hereby deleted and replaced with the abbreviation AnDOT.

All references to the Arkansas State Highway Commission contained within the Standard Specifications for Highway Construction (Edition of 2014), the Qualified Products List, the Manual of Field Sampling and Testing Procedures, the Standard Drawings, plan sheets, Supplemental Specifications, and all Special Provisions contained in this proposal remain in effect.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
ISSUANCE OF PROPOSALS

Section 102 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 102.04(i) is hereby deleted and the following is substituted therefore:

(i) If the prospective bidder is the Contractor on a current Contract with the Commission on which Liquidated Damages are being assessed, and there are no pending time extensions warranted to remove the project from Liquidated Damages.

Subsection 102.04(k) is hereby deleted and the following is substituted therefore:

(k) If the prospective bidder has a current Contract in default.
Division 100 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 105.15 is hereby modified as follows:

The first paragraph of Subsection 105.15 is hereby deleted and the following substituted therefor:

105.15 Maintenance During Construction. The Contractor shall maintain the work during construction and until the project is accepted. For contracts containing a Flexible Beginning of Work special provision, the responsibility for maintenance by the Contractor will begin at the earlier date of the following:

- when the Contractor begins work, or
- on the date of the beginning of time charges in accordance with the Work Order if the Contractor has not commenced work.

This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces, to the end that the roadway or structures are kept in satisfactory condition at all times.
Section 107 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added after the first bullet of the first paragraph of Subsection 107.10 Restraining Conditions (a), General:

- Human remains, burials, and/or associated burial artifacts

The following is hereby added after the second paragraph of Subsection 107.10 (b), Restraining Conditions Within the Right-of-Way:

When restraining conditions under (1) and (2) below are encountered, the following provisions should be executed.

(1) If archeological sites and/or historically significant cultural resources are unexpectedly impacted or subsequently discovered during construction, the Contractor shall stop work with no ground-disturbing activities occurring within a two hundred (200)-foot radius of the location of the discovery. The Engineer shall be notified immediately, who will then notify the Environmental Division. A Department staff archeologist will inspect the discovery and determine if the established buffer radius is appropriate. The radius may be decreased or increased based on the nature of the discovery at the discretion of the archeologist. Work in the buffer radius shall not resume until the Environmental Division has provided written notification to the Engineer that construction activities can proceed.

(2) If human remains, burials, and/or associated burial artifacts are encountered during construction, the Contractor shall stop work with no ground-disturbing activities occurring within a two hundred (200)-foot radius of the location of the discovery and the location secured and protected by flagging or fencing. The human remains shall be covered with a canvas tarp and shall not be removed or collected. The Engineer shall be notified immediately, who then will notify the Environmental Division. A Department staff archeologist will inspect the remains and determine if the established buffer is appropriate. The radius may be decreased or increased based on the nature of the discovery at the discretion of the archeologist. The local law enforcement and Chief Medical Examiner will be notified by the Environmental Division. Work in the buffer radius shall not resume until the Environmental Division has provided written notification to the Engineer that construction activities can proceed.
The following is hereby added after the third sentence of the first paragraph of **Subsection 107.10 (c), Restraining Conditions Outside the Right-of-Way, (2) Non-commercially Operated Site:**

The Contractor shall limit the amount of acres submitted for an off-site location to no more than 10 acres, except for commercial areas, previously approved locations, or where previous ground disturbance exists. If a Contractor requires more than 10 acres for a proposed off-site location, the Contractor may, at no cost to the Department, acquire approval for use of the site from the State Historic Preservation Officer and a qualified archeological consultant.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION

WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER

Section 108 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 108.02(b)(2) is hereby deleted and the following is substituted therefore:

(2) The delivery to the Department for execution of the Contract and bonds properly executed on behalf of the Contractor and surety and the minimum 72 hours advance notice as required above shall constitute the Contractor's authority to begin the following items of work:

- Mobilization;
- Preparation of shop drawings and other required submissions;
- Ordering, fabrication, assembly, and/or stockpiling of materials;
- Driving Test Piling; and
- Contract surveying, when Roadway and/or Bridge Construction Control is included in the Contract.
- Erection of advance warning signs.
- Installation of netting on structures to prevent nesting of migratory birds in accordance with applicable Special Provisions (if included in the Contract).
- Set up, installation, and testing of Automated Work Zone Information Systems (if included in the Contract).
- Off-site area approval process per Section 107.10(c).

Such advance work shall be subject to the Contractor's assumption of the risk of cancellation of the award and the following:

- The Contractor shall, on commencing such operations, take all precautions required for public safety and shall observe all the provisions in the Contract;
- In the event of cancellation of the award, the Contractor shall at Contractor expense do such work as necessary to leave the site in a neat condition to the satisfaction of the Engineer;
- In the event of cancellation of the award, all work performed shall be deemed to be at the Contractor's expense; and
- All work done under this subsection in accordance with the Contract before its execution by the Commission will, when the Contract is executed, be considered authorized work and will be paid for as provided in the Contract.

Unless otherwise notified in writing, no time will be assessed for work performed prior to the effective date of a Work Order.

No payments will be made prior to the date established by the Engineer under Subsection 109.07, which date will be after the effective date of a Work Order.

The Contractor shall not be entitled to any additional compensation or an extension of time for any delay, hindrance, or interference caused by or attributable to commencement of work before the effective date of a Work Order.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

PROTECTION OF WATER QUALITY AND WETLANDS

Section 110 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added as the last paragraph of Subsection 110.04(b):

On all projects let to contract after October 1, 2018, the project superintendent or supervisor (as defined in Subsection 105.06) must be certified in National Pollutant Discharge Elimination System (NPDES) through the University of Arkansas’ Center for Training Transportation Professionals (CTTP). The project superintendent or supervisor must provide proof of NPDES certification before any earth disturbing activities, including clearing and grubbing, or any installation of erosion control activities are allowed to begin.
Section 200 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added after the first paragraph of Subsection 210.08, Excavation Operations:

When performing excavation to construct cut slopes, the Contractor shall not excavate material below the finished slope grade. If excavation is performed more than 8 inches below the finished cut slope grade, overcut material shall be removed at no cost to the Department and replaced with clean durable stone. The stone source and gradation shall be approved by the engineer before placement. There shall be no payment for this work.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
AGGREGATE BASE COURSE

Section 303 of the Standard Specifications for Highway Construction, Edition 2014, is hereby amended as follows:

The second paragraph of Subsection 303.02, Materials is hereby deleted and the following substituted therefor:

The Contractor shall have the option of using any higher numbered class Aggregate Base Course than that specified, provided that payment will be for the class specified. Acceptance criteria shall be for the class specified. Different classes of Aggregate Base Course shall not be mixed in the same location.
Division 300 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The first sentence of the third paragraph Subsection 306.03 Acceptance Testing is hereby deleted and the following substituted therefor:

If the material being furnished is crushed stone the Department will furnish the PL, LL, and PI for the material, further tests for PL, LL, and PI are waived.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CEMENT

Section 307 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added as the last bullet of the first paragraph of Subsection 307.03, Materials. (b) Cement.

- Portland-Limestone Cement, AASHTO M240, Type 1L. Type 1L shall have a limestone constituent greater than 5 percent and less than or equal to 15 percent by mass of blended cement.
Section 308 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added as the last bullet of the first paragraph of Subsection 308.03, Materials. (b) Cement.

- Portland-Limestone Cement, AASHTO M240, Type 1L. Type 1L shall have a limestone constituent greater than 5 percent and less than or equal to 15 percent by mass of blended cement.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
TACK COATS

Division 400 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 401, Prime and Tack Coats and Emulsified Asphalt in Base Course, is hereby modified as follows:

The first sentence of Subsection 401.03(a) is hereby deleted and the following substituted therefore:

The surface to be treated with prime or tack coat shall be cleaned of dust, dirt, and loose or foreign material by sweeping with mechanical brooms immediately preceding the application of the prime or tack coat.

Third sentence of Subsection 401.03(c) is hereby deleted and the following is substituted therefore:

No dilution beyond that which is part of the emulsification process is permitted. The tack coat shall not be diluted, cut, or otherwise thinned after receipt from the manufacturer’s facility.

The fifth sentence of Subsection 401.03(c) is hereby deleted and the following substituted therefore:

The rate of application shall be from 0.03 gallon to 0.10 gallon per square yard (0.1 L/sq m to 0.5 L/sq m) of residual asphalt as designated by the Engineer.

Section 4100, Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses, is hereby modified as follows:

The sixth paragraph of Subsection 410.05 is hereby deleted and the following substituted therefore:

For foreign material, or when the time lapse between courses is more than 8 hours, the earlier course shall be cleaned and given a tack coat before placing the succeeding course. When directed, the tack coat shall be applied and paid for under Section 401. If directed by the Engineer, a tack coat shall be used even though the elapsed time has been less than 8 hours.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES

Division 400 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 404, QUALITY CONTROL OF ASPHALT MIXTURES, is hereby modified as follows:

The third paragraph Subsection 404.04 is hereby deleted and the following substituted therefore:

The accepted mix design shall be field verified by the Contractor at the start of mix production or after an interruption of more than 120 calendar days. The asphalt mixture shall be verified by testing mix that has been produced through the plant using the aggregate proportions shown on the accepted mix design. Production of Department approved mix designs for placement on non-ARDOT projects may be used for mix verification. The Contractor shall notify the Engineer sufficiently in advance for Department personnel to witness all testing of this production and shall provide copies of all test results to the Department.

Section 410, Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses is hereby modified as follows:

The first and second sentence of Subsection 410.09, Acceptance of the Payment and Adjustments in Payment, is hereby deleted and the following is substituted therefore:

(a) General. The accepted mix design shall be verified by the Contractor at the start of mix production for that design or after an interruption of more than 120 calendar days. A maximum of 200 tons (200 metric tons) of materials may be placed on the roadway during the verification process.

Section 411, Asphalt Concrete Plant Mix is hereby modified as follows:

The third sentence of Subsection 411.05 (B), Acceptance is hereby amended and the following is substituted therefore:

(b) Acceptance. The accepted mix design shall be field verified by the Contractor at the start of mix production or after an interruption of more than 120 calendar days.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
PERCENT AIR VOIDS FOR ACHM MIX DESIGNS

Division 400 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth sentence of Paragraph 1 of Subsection 404.01(b), Design Requirements, is hereby deleted and the following substituted therefor:

The optimum asphalt content is the asphalt binder content at 4% Air Voids (AV).

The first bullet of Paragraph 1 is hereby deleted and the following substituted therefor:

- PG 64-22 and PG 70-22 mixes will be designed using 4% air voids;

The second sentence of Paragraph 2 of Subsection 404.04, Quality Control of Asphalt Mixtures, is hereby deleted and the following substituted therefor:

Adjustments to the accepted mix design to conform to actual production values without re-design of the mixture shall be based on production of the mixture at a target value of 4.0% Air Voids (AV) in specimens and an asphalt binder content not less than that specified in the accepted mix design.

Table 405-1 of Subsection 405.03 Materials is hereby deleted and the following substituted therefor:

<table>
<thead>
<tr>
<th>Table 405-1</th>
</tr>
</thead>
</table>

Design Requirements for Asphalt Concrete Hot Mix Base Course

<table>
<thead>
<tr>
<th>Control Points</th>
<th>Sieve (mm)</th>
<th>Percent Passing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2&quot; (50.0)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>1 1/2&quot; (37.5)</td>
<td>90 - 100</td>
</tr>
<tr>
<td></td>
<td>1&quot; (25.0)</td>
<td>90 max.</td>
</tr>
<tr>
<td></td>
<td>No. 4 (4.75)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 8 (2.36)</td>
<td>15 - 41</td>
</tr>
<tr>
<td></td>
<td>No. 16 (1.18)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 30 (0.60)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 50 (0.30)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 200 (0.075)</td>
<td>0 - 6</td>
</tr>
</tbody>
</table>

Asphalt Binder Content | Design Value

% Air Voids | 4.0
% VMA | 11.5 – 13.0
Minimum Water Sensitivity Ratio | 80.0
% Anti-strip | As Required
Fines to Asphalt Ratio* | 0.6 – 1.6

Wheel Tracking Test | Design Gyration | Maximum Rut
| (8000 cycles, 100 psi, 64°C) | 75 & 115 | 0.315 in. (8.000 mm)
| | 160 | 0.197 in. (5.000 mm)
| | 205 | 0.197 in. (5.000 mm)

*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.
Table 406-1 of Subsection 406.04, Construction Requirements and Acceptance, is hereby deleted and the following substituted therefor:

Table 406-1
Design Requirements for Asphalt Concrete Hot Mix Binder Course
(1″ [25 mm])

<table>
<thead>
<tr>
<th>Control Points</th>
<th>Percent Passing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve (mm)</td>
<td></td>
</tr>
<tr>
<td>1½″ (37.5)</td>
<td>100</td>
</tr>
<tr>
<td>1″ (25.0)</td>
<td>90 - 100</td>
</tr>
<tr>
<td>¾″ (19.0)</td>
<td>90 max.</td>
</tr>
<tr>
<td>No. 4 (4.75)</td>
<td>-</td>
</tr>
<tr>
<td>No. 8 (2.36)</td>
<td>19 - 45</td>
</tr>
<tr>
<td>No. 16 (1.18)</td>
<td>-</td>
</tr>
<tr>
<td>No. 30 (0.60)</td>
<td>-</td>
</tr>
<tr>
<td>No. 50 (0.30)</td>
<td>-</td>
</tr>
<tr>
<td>No. 200 (0.075)</td>
<td>1 - 7</td>
</tr>
</tbody>
</table>

Asphalt Binder Content Design Value
% Air Voids 4.0
% VMA 12.5 – 14.0
Minimum Water Sensitivity Ratio 80
% Anti-strip As Required
Fines to Asphalt Ratio* 0.6 – 1.6

Wheel Tracking Test Design Gyration Maximum Rut
(8000 cycles, 100 psi, 64°C) 75 & 115 0.315 in. (8.000 mm)
160 0.197 in. (5.000 mm)
205 0.197 in. (5.000 mm)

*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
PERCENT AIR Voids FOR ACHM MIX DESIGNS

Table 407-1 and Table 407-2 of Subsection 407.04, Construction Requirements and Acceptance, are hereby deleted and the following substituted therefor:

Table 407-1
Design Requirements for Asphalt Concrete Hot Mix Surface Course (1/2" [12.5 mm])

<table>
<thead>
<tr>
<th>Sieve (mm)</th>
<th>Percent Passing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¾&quot; (19.0)</td>
<td>100</td>
</tr>
<tr>
<td>½&quot; (12.5)</td>
<td>90 - 100</td>
</tr>
<tr>
<td>3/8&quot; (9.5)</td>
<td>90 max.</td>
</tr>
<tr>
<td>No. 8 (2.36)</td>
<td>28 - 58</td>
</tr>
<tr>
<td>No. 16 (1.18)</td>
<td>-</td>
</tr>
<tr>
<td>No. 30 (0.60)</td>
<td>-</td>
</tr>
<tr>
<td>No. 50 (0.30)</td>
<td>-</td>
</tr>
<tr>
<td>No. 200 (0.075)</td>
<td>2 - 10</td>
</tr>
</tbody>
</table>

Asphalt Binder Content Design Value
% Air Voids 4.0
% VMA 14.0 – 16.0
Minimum Water Sensitivity Ratio 80.0
% Anti-strip As Required
Fines to Asphalt Ratio* 0.6 – 1.6
Wheel Tracking Test Design Gyration Maximum Rut
(8000 cycles, 100 psi, 64°C) 75 & 115 0.315 in. (8.000 mm)
                                   160 0.197 in. (5.000 mm)
                                   205 0.197 in. (5.000 mm)

*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.
Table 407-2
Design Requirements for Asphalt Concrete Hot Mix Surface Course (3/8" [9.5 mm])

<table>
<thead>
<tr>
<th>Control Points</th>
<th>Sieve (mm)</th>
<th>Percent Passing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>½&quot; (12.5)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>3/8&quot; (9.5)</td>
<td>90 - 100</td>
</tr>
<tr>
<td></td>
<td>No. 4 (4.75)</td>
<td>90 max.</td>
</tr>
<tr>
<td></td>
<td>No. 8 (2.36)</td>
<td>32 - 67</td>
</tr>
<tr>
<td></td>
<td>No. 16 (1.18)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 30 (0.60)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 50 (0.30)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>No. 200 (0.075)</td>
<td>2 - 10</td>
</tr>
</tbody>
</table>

Asphalt Binder Content | Design Value
% Air Voids | 4.0
% VMA | 15.0 – 17.0
Minimum Water Sensitivity Ratio | 80.0
% Anti-strip | As Required
Fines to Asphalt Ratio* | 0.6 – 1.6

Wheel Tracking Test | Design Gyration | Maximum Rut
(8000 cycles, 100 psi, 64°C) | 75 & 115 | 0.315 in. (8.000 mm.)
| 160 | 0.197 in. (5.000 mm) |
| 205 | 0.197 in. (5.000 mm) |

*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

LIQUID ANTI-STRIP ADDITIVE

Division 400 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 404, DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES, is hereby modified as follows:

The following is added as the last bullet following the first paragraph of Subsection 404.01(b), Design Requirements:

- All ACHM mixes must contain a liquid, anti-strip additive.

Section 409, MATERIALS AND EQUIPMENT FOR ASPHALT CONCRETE PLANT MIX COURSES, is hereby modified as follows:

The second paragraph of Subsection 409.02 Asphalt Binder is hereby deleted and the following substituted therefor:

The asphalt binder for all Asphalt Concrete Hot Mixes shall contain a heat-stable, liquid anti-strip additive. The additive shall be furnished from the Qualified Products List. The additive shall not harm the completed bituminous concrete mixture and must be compatible with the aggregate and asphalt binder supplied for the project. The anti-strip additive shall be added either by an in-line blending process just before introduction of the asphalt binder to the mixer or by blending with the asphalt binder at the asphalt binder terminal. If blended at the terminal, the bill of lading accompanying the load being delivered to the hot mix asphalt plant shall include the anti-strip manufacturer’s name, product name, and quantity of all anti-strip additive included in the load.

The liquid anti-strip additive shall be added at rates as indicated below:

- For ACHM mixes where the use of an anti-strip additive is required as determined by the laboratory analysis and mix design procedures, the anti-strip additive shall be added at the rate of 0.5% to 0.75% (0.05% to 0.10% for organosilane based materials) by weight of asphalt binder as determined by the laboratory analysis and laboratory mix design procedures.
- For all other mixes, the manufacturer’s recommended dosage of the additive shall be used, but the rate of liquid anti-strip additive shall not be less than 0.25% (0.05% for organosilane based materials) by weight of the asphalt binder.
Arkansas Department of Transportation

Supplemental Specification

Trackless Tack

Sections 401 and 403 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added after the second sentence of Subsection 401.02 Materials:

Trackless Tack meeting the requirements of this supplemental specification may be used as Tack Coat at no additional cost to the Department.

The following is hereby added after the fifth sentence of Subsection 401.03(c), Application of Tack Coat:

When Trackless Tack is used, the Contractor shall follow the manufacturer’s recommendations for storage, application temperature, and application rate.

The following is hereby added as the second paragraph of Subsection 401.06, Basis of Payment:

If the Contractor elects to use Trackless Tack in lieu of Tack Coat, the application and payment for the material used will be measured and paid for at the contract unit price bid for Tack Coat per gallon (liter).

The following is hereby added after the second sentence of the first paragraph Subsection 403.03, Asphalt Materials:

The manufacturer shall submit certified test results for Trackless Tack to the Engineer.
The following is hereby added as **Subsection 403.03 (g), Trackless Tack:**

Trackless tack shall be an anionic or cationic asphalt emulsion conforming to the requirements below:

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, Saybolt Furol at 25°C SFS</td>
<td>AASHTO T59</td>
<td>20</td>
</tr>
<tr>
<td>Storage stability test, 24-h, %</td>
<td>AASHTO T59</td>
<td>1</td>
</tr>
<tr>
<td>Sieve test, %</td>
<td>AASHTO T59</td>
<td>0.3</td>
</tr>
<tr>
<td>Residue by distillation, %</td>
<td>AASHTO T59</td>
<td>50</td>
</tr>
</tbody>
</table>

Tests on residue from distillation:

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penetration, 25°C, 100 g, 5 s</td>
<td>AASHTO T59</td>
<td>20</td>
</tr>
<tr>
<td>*Solubility %</td>
<td>AASHTO T44</td>
<td>97.5</td>
</tr>
<tr>
<td>*Ash Content</td>
<td>AASHTO T111</td>
<td>1</td>
</tr>
<tr>
<td>Softening Point °C</td>
<td>AASHTO T53</td>
<td>65</td>
</tr>
</tbody>
</table>

*Ash Content or Solubility may be used for testing purposes of the residue from distillation.
Section 400 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added after the first sentence of paragraph 3 Subsection 404.01 Design of Asphalt Mixtures. (b) Design Requirements:

Any use of recycled engine oil bottoms (REOB) or other engine oil derivatives in the manufacture or modification of a binder are strictly prohibited. Ground Tire Rubber (GTR) may be added to asphalt binder with blending of GTR into asphalt occurring only at the asphalt terminal. GTR shall be Class 80-1 ground tire rubber as defined by ASTM D5603.
Section 410, Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby modified as follows:

Subsection 410.10 Incentives is hereby deleted.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS

Section 410 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth sentence of the first paragraph of Subsection 410.08, Rolling and Density Requirements and Joints, is hereby deleted and the following substituted therefor:

The Engineer will observe the Contractor’s use of an electromagnetic surface contact device that meets ASTM D7113/D7113M or the use of a nuclear density gauge to verify that the maximum densities possible are obtained.
Section 410 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following shall be added to the second to the last paragraph of Subsection 410.09 (a) General:

If the material used to replace unacceptable material is a different mix design from what was originally placed, the remaining material in the lot and the replacement material shall both be evaluated as separate partial lots.
Section 501 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added as the last bullet of the first paragraph of Subsection 501.02, Materials. (a) Cement.

- Portland-Limestone Cement, AASHTO M240, Type 1L. Type 1L shall have a limestone constituent greater than 5 percent and less than or equal to 15 percent by mass of blended cement.

The second sentence of the third paragraph of Subsection 501.02, Materials. (a) Cement. is revised as follows:

The total alkalis in the cementitious material (Portland cement, Portland – Limestone cement, fly ash or slag cement) shall not exceed 5 lb/cu yd (3 kg/cu m).
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

WELDED WIRE REINFORCEMENT

Section 502 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth paragraph of Subsection 502.02 is hereby deleted and the following substituted therefor:

Welded Wire Reinforcement shall comply with AASHTO M 336.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

PORTLAND CEMENT CONCRETE DRIVEWAY

Division 500, RIGID PAVEMENT, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 505, PORTLAND CEMENT CONCRETE DRIVEWAY, is hereby modified as follows:

The first paragraph of Subsection 505.02(b) Joint Filler is hereby deleted and the following substituted therefore:

Material for joint filler shall comply with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer’s certificates in accordance with these specifications and acceptable performance on the project.
Sections 609, 611, 617, and 618 of the Standard Specifications for Highway Construction, Edition of 2014, are hereby amended as follows:

Subsection 609.02(c), Materials for Drop Inlets and Junction Boxes, is hereby deleted and the following is substituted therefor:

(c) Steel for welded steel grates and frames shall comply with ASTM A709, Grade 36 (250).

Subsection 611.02(a)(2), Materials for Pipe Underdrains, Outlet Protectors, and Covers, is hereby deleted and the following is substituted therefor:

(2) Corrugated Polyethylene Tubing. The tubing shall be the heavy duty type and shall comply with AASHTO M 252. The tubing shall have a minimum pipe stiffness of 46 psi (3.23 kg/cm²) at 5% deflection and shall be capable of 60 percent vertical deflection in parallel plate loading without splitting or cracking when tested in accordance with ASTM D 2412.

The second sentence of Subsection 617.02(a), Materials for Steel Posts, is hereby deleted and the following is substituted therefor:

(2) Steel Posts. The steel shall comply with ASTM A709, Grade 36 (250).

Subsection 617.02(b)(3), Materials for Terminal Anchor Posts, is hereby deleted and the following is substituted therefor:

(3) The steel anchor posts shall consist of structural shapes of the section shown on the plans, or as otherwise specified, and shall comply with ASTM A709, Grade 36 (250). The upper 15” (380 mm) of the anchor assembly shall be galvanized according to AASHTO M 111.

The third sentence of the third paragraph Subsection 618.02(a), Posts for Guard Cable, is hereby deleted and the following is substituted therefor:

The steel shall comply with ASTM A709, Grade 36 (250).

Subsection 618.02(d), Materials for Bolts, Nuts, and Washers, is hereby deleted and the following is substituted therefor:
(d) **Bolts, Nuts, and Washers.** Bolts, nuts, and washers shall conform to the plans and shall be steel complying with ASTM A 307, ASTM F3125, Grade A325, Heavy Hex, Type 1, or ASTM A449 (Heavy Hex), galvanized according to AASHTO M 232. Threads on bolts and nuts shall conform to Unified Coarse Thread Series Class 2A, ANSI B 1.1 (Metric Coarse Thread Series, ANSI B 1.13M, 6g tolerance).
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

LANE CLOSURE NOTIFICATION

Division 600 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 603, Maintenance of Traffic and Temporary Structures, is hereby modified as follows:

The first sentence of the third paragraph Subsection 603.02 (d) is hereby deleted and the following substituted therefor:

The Contractor shall provide the Engineer with a minimum of five full business days advance, written notification of any nonemergency lane closure or lane width restriction. The first full business day shall commence at midnight on the first business day following written notification to the Engineer. This advanced notification is required to allow adequate notice for the issuance of over width load permits by the Department.
Section 604 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is inserted after the first paragraph of Subsection 604.02(b):

Retroreflective sheeting used on traffic drums shall meet the requirements of ASTM D4956 for Type III or IV with the additional requirements for Reboundable Sheeting. Retroreflective sheeting for delineators shall comply with section 728.

Retroreflective sheeting shall be applied to a properly treated substrate with mechanical equipment and in a manner specified by the sheeting manufacturer. Sign material (substrate) shall be of sufficient thickness and stability to maintain a substantial, effective sign for the duration of the project. One splice will be allowed in retroreflective sheeting on sign blanks. "Left", "Right", "Distances", and "Ahead" will be allowed on signs as inserts. All letters and numerals on inserts shall be of the same size and series as those on the sign face.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)

Section 604 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The first paragraph of Subsection 604.02 Materials (a) General is hereby deleted and the following substituted therefor:

All work zone traffic control devices used on the project, including sign supports, barricades, traffic drums equipped with flashing lights, crash cushions, and impact attenuators, manufactured after December 31, 2019, shall comply with the requirements of the Manual for Assessing Safety Hardware (MASH). Such devices manufactured on or before December 31, 2019, and successfully tested to the requirements of National Cooperative Highway Research Program (NCHRP) Report 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives. The Contractor shall furnish a certification of such compliance from the manufacturer or supplier of all work zone traffic control devices prior to using the devices on the project. The certification shall state the device meets the requirements of MASH, or in the case that the device was manufactured on or before December 31, 2019, the certification shall state the device meets the requirements of NCHRP 350 or MASH. The certification shall include a copy of the Federal Highway Administration’s (FHWA) approval letter with all attachments for each device. Devices shall be fabricated and installed in accordance with the plans and with the crash testing documentation provided in the FHWA approval letter which is available at:

Arkansas Department of Transportation

Supplemental Specification

Concrete Ditch Paving

Division 600, Incidental Construction, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 605, Concrete Ditch Paving, is hereby modified as follows:

The last sentence of Subsection 605.03(e) Expansion Joints is hereby deleted and the following substituted therefor:

The space shall be filled with approved joint filler complying with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer’s certification in accordance with these specifications and acceptable performance on the project.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
PIPE CULVERTS FOR SIDE DRAINS

Section 606 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:
The second paragraph of Subsection 606.01 is hereby deleted and the following substituted therefore:

For side drains, when the type is not specified on the plans, the Contractor may furnish any of the types listed in Subsection 606.02 provided that only one type and material shall be used for all side drains of like cross-sectional shape on the project. In addition, when circular pipe is specified for a side drain the Contractor may, at no additional cost to the Department, substitute an arch pipe providing the equivalent waterway.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
Mulch Cover

Section 620 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 620.02 Materials (d) is hereby deleted and the following substituted therefore:

(d) Mulch cover. Shall be a mulch cover system as listed on the Department's Qualified Products List (QPL) or shall consist of straw from threshed rice, oats, wheat, barley, or rye; of wood excelsior; or of hay obtained from various legumes or grasses, such as lespedeza, clover, vetch, soybeans, bermuda, carpet sedge, bahia, fescue, or other legumes or grasses; or a combination thereof. Mulch shall be dry and reasonably free from Johnson grass or other noxious weeds, and shall not be excessively brittle or in an advanced state of decomposition. All material will be inspected and approved prior to use.

The following is inserted after Subsection 620.03 Construction Requirements (c) Seeding (3) Hydro-seeding:

(4) Mulch Cover. If a mulch cover system listed on the Department's Qualified Products List (QPL) is used then the mulch cover and the seed may be incorporated into one operation.

Subsection 620.03 Construction Requirements (d) is hereby deleted and the following substituted therefore:

(d) Mulch Cover. If a Mulch Cover system listed on the Department's Qualified Products List (QPL) is used then refer to the application rate listed in the QPL otherwise the mulch cover shall be applied at the rate of 4000 pounds per acre (4500 kg/ha). If the mulch cover and seed are not incorporated into one operation then apply the mulch cover immediately after seeding and spread the mulch cover uniformly over the entire area by approved power mulching equipment. When approved by the Engineer, the Contractor may use hand methods to apply mulch cover to small or inaccessible areas. If the Contractor so elects, an approved mulching machine may be used, whereby the application of mulch cover and tackifier may be combined into one operation. If this method is used, no change in application rates will be allowed. In its final position, the anchored mulch shall be loose enough to allow air to circulate, but compact enough to partially shade the ground and reduce the impact of rainfall on the surface of the soil. Care shall be taken to prevent tackifier materials from discoloring or marking structures, pavements, utilities, or other plant growth. Removal of any objectionable discoloration shall be at no cost to the Department.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION

Mulch Cover

The first paragraph of subsection 620.03 Construction Requirements (e) is hereby deleted and the following substituted therefore:

(e) Mulch Anchoring. If a mulch cover system is selected from the Department's Qualified Products List (QPL) then no additional anchoring is needed. If a mulch cover system is not used then immediately following or during the application of mulch cover on seeded areas, the mulch shall be anchored by one of the following methods.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
FILTER SOCKS

Section 621 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added to Subsection 621.01:

(p) Filter Socks. This item shall consist of furnishing, installing, maintaining, and removing filter socks at locations indicated on the plans or as otherwise directed by the Engineer. Filter socks consist of filter media (compost or non-treated wood) encased in a three-dimensional fabric tube for the purposes of filtering silt, sediment, and other pollutants out of stormwater.

The following is added to Subsection 621.02:

(o) Compost or non-treated wood used for filter sock filter media shall be weed, disease, and pathogen free and derived from a clean source of woody organic matter. The media shall be free of any refuse, contaminates, or other materials toxic to plant growth. Test methods for the parameters shown in Table 621-2 should follow the recommendations provided in the AASHTO Standard Practice for Compost for Erosion and Sediment Control (R 51). Compost products must be supplied with a Seal of Testing Assurance (STA) by the U.S. Composting Council from the manufacturer. The Engineer may request a sample for approval prior to being used and materials must comply with all local, state, and federal regulations.

Table 621-2
Filter Sock Media Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Reported as (units of measure)</th>
<th>Test Method</th>
<th>Required Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH Units</td>
<td>AASHTO R 51</td>
<td>5.0-8.5</td>
</tr>
<tr>
<td>Moisture Content</td>
<td>%, wet weight basis</td>
<td>AASHTO R 51</td>
<td>&lt;60%</td>
</tr>
<tr>
<td>Organic Matter Content</td>
<td>%, dry weight basis</td>
<td>AASHTO R 51</td>
<td>&gt;30%</td>
</tr>
<tr>
<td>Particle Size</td>
<td>% passing a selected mesh size, dry weight basis</td>
<td>AASHTO R 51</td>
<td>99% passing a 2” sieve &lt;40% passing a 3/8” sieve</td>
</tr>
<tr>
<td>Physical Contaminates (man-made inert material)</td>
<td>%, dry weight basis</td>
<td>N/A</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Filter sock containment shall be produced from 5-mil-thick continuous high density polyethylene (HDPE) filament or multi-filament polypropylene (MFPP), woven or knitted into a tubular mesh netting. Openings in the mesh shall range from 1/8th to 3/8th inch. This tube shall then be filled to the specified diameter of the sock with filter media which meets the specifications outlined in Table 621-2. Filter sock fabric shall have a minimum functional longevity of 9 months.
Furnish filter socks with a diameter of 8-9, 12, 18, or 24 inches in diameter in variable lengths as directed by the Engineer.

Use 2” by 2” hardwood stakes of a length which will allow them to be driven at least one foot into the soil while leaving at least 3” projecting above the sock after installation. In rocky or other difficult locations steel stakes may be used if directed by the Engineer. Sandbags may be used as necessary to anchor the filter sock for installation on paved surfaces. Placement shall be as directed by the Engineer.

The following is added to Subsection 621.03:

(q) Trenching of filter socks is not required but woody vegetation shall be cut at ground level or otherwise removed, and uneven or rocky surfaces shall be graded or raked to ensure the socks uniformly contact the ground. The socks shall be secured with stakes driven through the center of the devices or installed as recommended by the manufacturer. For perimeter control or on slopes, stakes shall be installed on a maximum of 10 foot centers and the ends of the socks shall be directed upslope to prevent storm water from running around the end of the sock. For ditch checks and drop inlets, stakes shall be installed on a maximum of 4 foot centers. Additional stakes may be necessary as directed by the Engineer. Filter socks may be laid end to end or overlapped according to the manufacturer’s directions.

Routinely maintain the socks in good condition (including staking, anchoring, etc.) Accumulated sediment shall be removed when the sediment reaches one-half the height of the sock or as directed by the Engineer. Sediment removed shall be deposited and stabilized as described in Section 110 of the Standard Specifications for Highway Construction, Edition of 2014. Repair of or complete replacement of torn or damaged socks shall be performed as required or as directed by the Engineer. Filter socks shall be carefully removed and replaced as required to facilitate construction operations.

When the required work has been completed, the area has been stabilized, and the filter socks are no longer required as approved by the Engineer, the containment material shall be cut and the core material shall be evenly distributed on the surrounding ground area. Containment shall be removed and disposed of.

The following is added to Subsection 621.04:

(q) Filter Socks will be measured by the linear foot (meter) complete in place; measurement will be made along the centerline of the top of the filter sock. No payment will be made for overlap. No payment will be made for additional length beyond that approved by the Engineer.
The following is added to Subsection 621.05:

(q) Filter Socks completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot (meter) for Filter Socks, which price shall be full compensation for furnishing all materials; for installation and maintenance of filter socks; for temporarily removing and replacing filter socks as required to facilitate construction operation; for removal and disposal of the filter socks as directed; and for all labor, equipment, tools, and incidentals necessary to complete the work.

The following is added as the last Pay Item in Subsection 621.05:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Sock (___”)</td>
<td>Linear Foot (Meter)</td>
</tr>
</tbody>
</table>
Division 600, INCIDENTAL CONSTRUCTION, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 632, CONCRETE ISLAND, is hereby modified as follows:

The last sentence of the fifth paragraph of Subsection 632.03 Construction Requirements is hereby deleted and the following substituted therefor:

The space shall be filled with approved joint filler complying with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer’s certification in accordance with these specifications and acceptable performance on the project.
Division 600, INCIDENTAL CONSTRUCTION, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 633, Concrete Walks, Concrete Steps, and Hand Railing, is hereby modified as follows:

Subsection 633.02(E) Expansion Joints is hereby deleted and the following substituted therefor:

A space not less than ½” (12mm) wide shall be left between the sidewalks and adjacent structures. This space shall be filled with approved joint filler complying with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer’s certification in accordance with these specifications and acceptable performance on the project. No space or joint filler is required between the sides of the walks and adjacent curbs.

Transverse expansion joints shall be placed at a maximum interval of 45’ (13.7m). Transverse joints shall be constructed using approved joint filler complying with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer’s certification in accordance with these specifications and acceptable performance on the project.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CURBING

Division 600, INCIDENTAL CONSTRUCTION, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 634, Curbing, is hereby modified as follows:

The last paragraph of Subsection 634.02 Materials is hereby deleted and the following substituted therefor:

Material for the joint filler shall comply with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer’s certification in accordance with these specifications and acceptable performance on the project.
Sections 712, 713, 714, 715, 728 and 730 of the Standard Specifications for Highway Construction, Edition of 2014, are hereby amended as follows:

Subsection 712.02(a) Materials for Span Wire Support Pole With Foundation is hereby deleted and the following is substituted therefor:

(a) Pole shafts shall comply with ASTM A 1011, SS, Grade 50 (345), ASTM A709, Grade 50 (345), ASTM A 595 Grade A, or ASTM A 572, Grade 50 or Grade 65. Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 712.02(c) Materials for Span Wire Support Pole With Foundation is hereby deleted and the following is substituted therefor:

(c) Anchor base plates shall comply with ASTM A709, Grade 36 (250). Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 712.02(e) Materials for Span Wire Support Pole With Foundation is hereby deleted and the following is substituted therefor:

(e) Hex nuts shall comply with AASHTO M 292 Grade 2H or ASTM A653 Grade 2H or ASTM A653 Grade DH or DH3 (Grade 10S or 10S3). The thread series shall correspond with that of the bolt furnished. Washers shall comply with ASTM F436. Galvanizing shall comply with AASHTO M 232 or ASTM B 695 Class 40 or 50. Nuts shall be galvanized by the same process as that of the bolts.

Subsection 712.02(f) Materials for Span Wire Support Pole With Foundation is hereby deleted and the following is substituted therefor:

(f) Concrete shall comply with Section 802 for Class S concrete. The Department will perform all acceptance sampling and testing at the frequencies shown for Contractor acceptance in Subsection 802.06. Reinforcing steel shall comply with Section 804 for Grade 60 steel.

The third paragraph of Subsection 713.02 Materials for Span Wire Assembly is hereby deleted and the following is substituted therefor:

Suitable cable ties shall be provided to suspend the traffic control cable at intervals not to exceed 18” (450 mm). Necessary eyebolts, washers, nuts, and fittings shall be galvanized steel complying with AASHTO M 232 or ASTM B695, Class 40 or 50.

Subsection 714.02(a) Materials for Traffic Signal Mast Arm and Pole with Foundation is hereby deleted and the following is substituted therefor:
(a) Poles and mast arms shall be ASTM A 1011, SS, Grade 50 (345), ASTM A709, Grade 50 (345), ASTM A 595 Grade A or ASTM A 572, Grade 50 or Grade 65. Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 714.02(c) Materials for Traffic Signal Mast Arm and Pole With Foundation is hereby deleted and the following is substituted therefor:

(c) Anchor Base Plates shall be ASTM A709, Grade 36 (250). Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 714.02(e) Materials for Traffic Signal Mast Arm and Pole With Foundation is hereby deleted and the following is substituted therefor:

(e) Hex nuts shall comply with AASHTO M 292 Grade 2H or ASTM A563 Grade DH or DH3 (Grade 10S or 10S3). The thread series shall correspond with that of the bolt furnished. Washers shall comply with ASTM F436. Galvanizing shall comply with AASHTO M 232 or ASTM B695, Class 40 or 50. Nuts shall be galvanized by the same process as that of the bolts.

Subsection 714.02(f) Materials for Traffic Signal Mast Arm and Pole With Foundation is hereby deleted and the following is substituted therefor:

(f) Clamp Plates shall be ASTM A709, Grade 36 (250). Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 714.02(g) Materials for Traffic Signal Mast Arm and Pole With Foundation is hereby deleted and the following is substituted therefor:

(g) Flange and Gusset Plates shall be ASTM A709, Grade 36 (250). Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 714.02(h) Materials for Traffic Signal Mast Arm and Pole With Foundation is hereby deleted and the following is substituted therefor:

(h) Clamp and Flange Bolts shall be ASTM F3125, Grade A325, Type 1, Heavy Hex with the requirements of Annex A2. Galvanizing shall comply with AASHTO M 232 or ASTM B695, Class 40 or 50.

Subsection 714.02(i) Materials for Traffic Signal Mast Arm and Pole With Foundation is hereby deleted and the following is substituted therefor:
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

TRAFFIC CONTROL FACILITIES

(i) Concrete shall comply with Section 802 for Class S concrete. The Department will perform all acceptance sampling and testing at the frequencies shown for Contractor acceptance testing in Subsection 802.06. Reinforcing steel shall comply with Section 804 for Grade 60 steel.

Subsection 715.02(c) Materials for Traffic Signal Pedestal Pole With Foundation is hereby deleted and the following is substituted therefor:

(c) Anchor Base Plates shall be ASTM A709, Grade 36 (250). Galvanizing shall comply with AASHTO M 111, Thickness Grade 100.

Subsection 715.02(e) Materials for Traffic Signal Pedestal Pole With Foundation is hereby deleted and the following is substituted therefor:

(e) Hex nuts shall comply with AASHTO M 292 Grade 2H or ASTM F436 Grade DH or DH3 (Grade 10S or 10S3). The thread series shall correspond with that of the bolt furnished. Washers shall comply with ASTM F436. Galvanizing shall comply with AASHTO M 232 or ASTM B695, Class 40 or 50. Nuts shall be galvanized by the same process as that of the bolts.

The fifth and sixth paragraphs of Subsection 728.02 Materials for Delineators are hereby deleted and the following are substituted therefor:

Steel posts for bridge rail installation shall be a 1” x 1” x 3/16” (25 mm x 25 mm x 4.76 mm) angle weighing 1.61 pounds per foot (2.4 kg/m), and manufactured from ASTM A709, Grade 36. Length of post and spacing of holes shall be as shown on the plans.

All delineators posts shall be hot dip galvanized in accordance with ASTM A123 and all fabrication, including punching or drilling holes, shall be completed before the posts are galvanized.

The second and third paragraphs of Subsection 730.02 Materials for Breakaway Sign Support are hereby deleted and the following are substituted therefor:

All structural steel, except pipe posts but including base plates on pipe posts, and steel fuse plates, shall comply with AASHTO M 270 Grade 50. Pipe posts shall be structural steel complying with ASTM A 53 Grade B pipe. Steel bolted or welded to the primary support posts and not affecting the breakaway function, may be AASHTO M 270 Grade 36.

All high strength bolts, nuts, and washers shall comply with ASTM F3125, Grade A325, Type 1, Heavy Hex with the requirements of Annex A2.
The third paragraph of Subsection 730.03 Fabrication for Breakaway Sign Support is hereby deleted and the following is substituted therefor:

All structural steel shall be galvanized after fabricating according to AASHTO M 111. All bolts, nuts, and washers shall be galvanized according to AASHTO M 232 or ASTM B695, Class 40 or 50.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

GENERAL REQUIREMENTS FOR SIGNS

Section 723 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 723.02(b) is hereby deleted and the following is substituted therefor:

(b) Sign Panels. Standard signs shall consist of a single sheet of aluminum alloy (ASTM B 209, Alloy 5052 H38) without stiffeners on the back. Minimum sign blank thickness shall be 0.080” (2.0 mm) for a sign size of 9 square feet (0.84 sq m) or less or 0.100” (2.5 mm) for a sign size greater than 9 square feet (0.84 sq m). Sign blanks shall be flat and straight and within commercial tolerances established by the aluminum industry.

Guide signs shall be fabricated using one piece extruded panels fabricated of aluminum alloy (ASTM B221, Alloy 6063 T6).

Extruded panel signs shall consist of sign panels; stringers or horizontal supporting members; necessary fasteners for assembling the units; reflective materials; letters; numerals; symbols; and border. All extrusions and fasteners shall be applied without causing objectionable projections on the sign face.

The one piece extruded aluminum panels shall be a minimum of 12” (300 mm) in width except one 6” (150 mm) panel may be used per sign face when necessary to construct the sign as shown on the plans.

All extruded panels shall be bolted together at every other hole (every 24” [610 mm]) with the faces and ends in alignment.

Single sheet and extruded panels to which reflective sheeting is to be applied shall be conversion coated as specified in ASTM B449 or ASTM B921 per the sheeting manufacturer’s recommendations.

All fabrication, including cutting and punching of holes, excluding holes for demountable letters, numerals, symbols, and borders, shall be completed before conversion coating.

Sign panels shall be free of buckles, warp, dents, cockles, burrs, and defects resulting from fabrication. The surface of all sign panels shall be flat.

The Contractor shall submit a Certified Test Report to the Engineer covering the sign panels.

The first paragraph of Subsection 723.02(c) is hereby deleted and the following is substituted therefor:
(c) **Retroreflective Sheeting.** The retroreflective sheeting for signs shall comply with ASTM D4956 for Type III, IV, VIII, or IX retroreflective sheeting, except that Type IX retroreflective sheeting shall be used on all W1-6, W1-8, and OM-3 signs. ASTM D4956 Type XI sheeting shall be used on all R5-1 and R5-1a signs. All retroreflective sheeting shall have either Class 1 or Class 2 backing.

Subsection 723.02(d) is hereby deleted and the following is substituted therefor:

(d) **Legend.** All legend, which includes letters, numerals, symbols, arrows, and border, shall have a regular outline, be clean cut and sharp, and shall have a continuous stroke and border without ragged or torn edges.

All legend on guide signs shall be of the size shown on the plans. Legend on standard signs shall comply with the latest revision of FHWA Standard Highway Signs.

The legend on freeway main lane guide signs shall be demountable. Unless otherwise specified, the legend on all other guide signs shall be manufactured using either direct application or acrylic overlay film. All other signs shall be manufactured using standard industry processes, including silk screening, acrylic overlay film, and digital printing. Digitally printed signs shall be overlaid with a clear UV film per the sheeting manufacturer’s recommendation.

All demountable legend shall be of the same manufacturer. The sign area outside the corner radius shall not be trimmed to match the border radius.

Frames for border strips, corners, shields, and legend shall be fabricated from 0.063” (1.6 mm) sheet aluminum complying with the requirements of ASTM B209, Alloy 5052-H38. Mounting holes shall be provided with the frames to permit the use of screws, bolts, rivets, or other fasteners of stainless steel, galvanized steel, or aluminum to fasten the frames to the sign face, subject to the condition that dissimilar metals shall be insulated to prevent corrosion.

The aluminum frames shall comply with Subsection 723.02(b).

All border material shall be secured from the same company that furnishes the cutout letters, numerals, etc. and shall be mounted in the same manner as the cutout letters.

Transparent colors, inks, paints, and films used in the sign manufacturing process shall be of the type and quality recommended by the manufacturer of the reflective sheeting and shall conform to red, blue, yellow, and green colors approved by the FHWA and shown in the MUTCD and FHWA Standard Highway Signs. The Contractor shall provide a sheeting manufacturer’s full component system warranty, and shall provide certification that the materials used shall meet all MUTCD minimum requirements for retroreflectivity and contrast for the warranty period of the sheeting.
ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

BREAKAWAY SIGN SUPPORT

Section 730 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following paragraph is added after the last paragraph of Subsection 730.02 Materials:

All breakaway sign supports used on the project, manufactured after December 31, 2019, shall comply with the requirements of the Manual for Assessing Safety Hardware (MASH). Such devices manufactured on or before December 31, 2019, and successfully tested to the requirements of National Cooperative Highway Research Program (NCHRP) Report 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives. The Contractor shall furnish a certification of such compliance from the manufacturer or supplier of all devices prior to using the devices on the project. The certification shall state the device meets the requirements of MASH, or in the case that the post was manufactured on or before December 31, 2019, the certification shall state the device meets the requirements of NCHRP 350 or MASH. The certification shall include a copy of the Federal Highway Administration’s (FHWA) approval letter with all attachments for each device. Devices shall be fabricated and installed in accordance with the plans and with the crash testing documentation provided in the FHWA approval letter, which is available at:

ARKANSAS DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION

CRASH CUSHION

Section 732 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 732.01 Description is hereby deleted and the following substituted therefor:

The item “Crash Cushion” shall consist of constructing a foundation pad including excavation and/or embankment, transitions from bridge ends, and a backup wall, when specified, and furnishing and installing a crash cushion according to these specifications and to the dimensions and at the locations shown on the plans or as directed. The crash cushion shall satisfy the Manual for Assessing Safety Hardware (MASH) requirements for a test level 3 (TL-3) crash cushion.

The first paragraph of subsection 732.02 Materials (b) Crash Cushion is hereby deleted and the following substituted therefor:

The Contractor shall furnish a certification from the manufacturer or supplier that the crash cushion meets the requirements of MASH for a TL-3 crash cushion. The crash cushion shall comply with the most current specifications and details for a guardrail energy absorbing terminal crash cushion as recommended by the manufacturer and as approved by the Engineer.
Sections 802, 805, 807, 809 and 817 of the Standard Specifications for Highway Construction, Edition of 2014, are hereby amended as follows:

The fifth sentence of the ninth paragraph 802.14(b), Permanent Steel Deck Forms, is hereby deleted and the following is substituted therefor:

(b) However, welding of form supports to flanges of steels other than ASTM A709, Grade 36 (250), 50 (345), or 50W (345W) of a weldable grade, and to those portions of a flange subject to tensile stresses will not be permitted except as provided for in the plans. Welding shall be accomplished by certified welders and according to Subsection 807.26 except that 1/8” (3mm) fillet welds will be permitted.

Subsection 805.03(c) is hereby deleted and the following is substituted therefor:

(c) Unless otherwise specified, steel piles shall consist of structural shapes of the section shown on the plans and shall comply with ASTM A709, Grade 36 (250).

Subsection 807.05, Structural Steel, is hereby deleted and the following substituted therefor:

Unless otherwise specified, structural steel shall conform to the requirements of Structural Steel for Bridges, ASTM A709, except that the Charpy V-Notch Impact test requirements shall apply only to materials designated on the contract drawings as main load carrying member components. When Charpy V-Notch tests are required, the test results shall conform to the requirements specified for Zone 1 minimum service temperature.

Grade 36 (250) shall be furnished unless otherwise specified.

Steel shall be furnished according to the following specifications:

(a) Carbon Steel. Unless otherwise specified, structural carbon steel for bolted or welded construction shall conform to ASTM A709, Grade 36 (250). Fill or shim plates ¼” (6mm) or less in thickness used in high strength bolted connections may be ASTM A1011, SS, Grade 36 (250), Type 2, Grade 40 (275), Grade 50 (340), or Grade 55 (380) or ASTM A 1011 HSLAS, Grade 50 (340), Class 1 or Grade 55 (380), Class 1.

(b) High Strength Low-Alloy Structural Steel. High strength low alloy structural steel shall conform to ASTM A709, Grades 50 (345) or 50W (345W). Fill or shim plates ¼” (6mm) or less in thickness used in high strength bolted connections of painted bridges may be ASTM A 1011, SS, Grade 50 (340), or Grade 55 (380) or ASTM A 1011 HSLAS, Grade 50 (340), Class 1 or Grade 55 (380), Class 1.

Fill or shim plates ¼” (6mm) or less in thickness used in high strength bolted connections of unpainted weathering steel may be ASTM A 606, Type 4.
ARKANSAS DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION  
STRUCTURES

(c) High-Yield-Strength, Quenched and Tempered Alloy Steel Plate. High yield strength, quenched and tempered alloy steel plate shall conform to ASTM A514, Grade 100 (690).

Quenched and tempered alloy steel structural shapes and seamless mechanical tubing shall meet all of the mechanical and chemical requirements of ASTM A514, Grade 100 (690), except that the specified maximum tensile strength may be 145,000 psi (1000 MPa) for seamless mechanical tubing.

(d) Structural Steel for Eyebars. Steel for eyebars shall be of a weldable quality conforming to ASTM A709, Grade 36 (250), Grade 50 (345), or Grade 50W (345W).

Subsection 807.06, High Strength Bolts, Nuts, and Washers for Structural Steel Connections, is hereby deleted and the following is substituted therefor:

(a) Specifications. High strength bolts shall be heavy hex and shall conform to the requirements of ASTM F3125, Grade A325, Heavy Hex, except as modified herein. Type 1 bolts shall be provided when used with painted structural steel or when galvanized bolts are specified. Type 3 bolts shall be provided when used with unpainted weathering structural steel. The maximum hardness of high strength bolts shall be 33 Hardness Rockwell C.

Nuts shall be heavy hex and shall conform to the requirements of ASTM A563 or AASHTO M 292. Nuts for plain, uncoated Type 1 bolts shall be Grade 2H, Grade DH or DH3. Nuts for Type 3 bolts shall be Grade DH3. Nuts for galvanized bolts shall be Grade 2H or Grade DH. When galvanized nuts are furnished, the zinc coating, overtapping, lubrication, and proof loading shall be in accordance with ASTM A563.

Washers shall conform to the requirements of ASTM F436. Where necessary, washers may be clipped on one side to a point not closer than 7/8 of the bolt diameter from the center of the washer. Beveled washers shall be used in the flanges of American Standard beams and channels. Weathering steel washers shall be used with Type 3 bolts.

When galvanized bolt assemblies are specified, the bolts, nuts, and washers shall be galvanized according to AASHTO M 232, Class C, or ASTM B695, Class 50. All components in a fastener assembly shall be galvanized by the same process.

Galvanized nuts shall be provided with a lubricant that is clean and dry to the touch. The lubricant shall contain a visible dye so that a visual check can be made for the lubricant at the time of field installation. Plain, uncoated bolts, nuts, and washers must be "oily" to the touch when installed.

(b) Required Tests. High strength fasteners, plain and galvanized, shall be subjected to a rotational capacity test according to ASTM F3125 Annex A2, and shall meet the following requirements:
1. Go through two times the required number of turns (from snug tight conditions) indicated in Table 807-1, in a Skidmore-Wilhelm Calibrator or equivalent tension measuring device, without stripping or failure.

2. During this test, the maximum recorded tension shall be equal to or greater than 1.15 times the Minimum Bolt Tension as shown in Table 807-3.

3. The measured torque needed to produce the Minimum Bolt Tension shall not exceed the value obtained by the following equation:

   \[ \text{Torque} = 0.25 \times P \times D \]

   where:
   \( \text{Torque} \) = Maximum Measured Torque (Foot-pounds [newton meter])
   \( P \) = Measured Bolt Tension (pounds [kilonewtons])
   \( D \) = Nominal Diameter (Feet [mm])

Proof load tests according to ASTM F606M (F606) Method 1 are required for the bolts. Wedge tests of full size bolts are required according to Section 10 of ASTM F3125. Galvanized bolts shall be wedge tested after galvanizing. Proof load tests according to ASTM A563 are required for the nuts. The proof load tests for nuts to be used with galvanized bolts shall be performed after galvanizing, overtapping, and lubricating.

The Engineer shall be furnished with a manufacturer’s certification for all high strength bolts, nuts, and washers used on the project. This certification shall provide a lot number, shop order number, or other identification such that the heat number from which the items were made can be traced. This identifying number shall also appear on the sealed shipping containers. The certification shall indicate when and where all testing was done, including the rotational capacity tests, and shall include the zinc thickness when galvanized bolts, nuts, and washers are used.

Item (1) of Subsection 807.26(b), Modification of Structural Welding Code, is hereby deleted and the following is substituted therefor:

(1) Subparagraph 1.3.4 is modified to include:

Electroslag welding shall not be used as a welding process on bridge structures.

The first paragraph of Subsection 807.71, High Strength Bolt Connections, is hereby deleted and the following is substituted therefor:

(a) General. High strength bolts meeting the requirements of ASTM F3125, Grade A325, Heavy Hex, including Annex A2, shall be furnished unless otherwise specified.

Subsection 807.77, Materials (a) Inorganic Zinc-Rich Primer, is hereby deleted and the following is substituted therefor:
(a) **Inorganic Zinc-Rich Primer.** The prime coat shall be an inorganic zinc-rich paint complying with the requirements of AASHTO M 300 for Type 1 or Type II.

The paint shall qualify for a Class A classification (slip coefficient of 0.33 or greater) when tested according to "Testing Methods to Determine the Slip Coefficient for Coatings used in Bolted Joints", in Appendix A of Specification for Structural Joints Using High-Strength Bolts as published by the Research Council on Structural Connections.

The first paragraph of Subsection 809.02(b), Armored Joint with Neoprene Strip Seal, is hereby deleted and the following is substituted therefor:

(b) **Armored Joint with Neoprene Strip Seal.** The armored joint shall consist of steel extrusions with neoprene strip seal. Steel extrusions shall conform to the requirements of ASTM A709, Grade 50W, or as specified.

Subsection 817.02(b), Steel Items, is hereby deleted and the following is substituted therefor:

(b) **Steel Items.** Bars, plates, and structural shapes shall be of steel conforming to the requirements of ASTM A709, Grade 36 (250), except that Charpy V-Notch Impact tests are not required.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CONCRETE FOR STRUCTURES

Section 802 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth paragraph of Subsection 802.19(b)(1), Class 1, Ordinary Surface Finish, is hereby deleted and the following is substituted therefor:

The tops of caps shall be properly finished with a steel trowel to a smooth finish at the plan elevation and shall not be deformed, recessed, or irregular. Any misalignment in the area of the bridge seat shall be corrected to form a level surface. All corrective action (including changes to the finished elevation of the concrete surface) greater than 1/8” (3 mm) must be submitted to the Engineer for review and approval.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
CEMENT

Section 802 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added as the last bullet of the second paragraph of Subsection 802.02, Materials. (a) Cement.

- Portland-Limestone Cement, AASHTO M240, Type 1L. Type 1L shall have a limestone constituent greater than 5 percent and less than or equal to 15 percent by mass of blended cement.

The second sentence of the fourth paragraph of Subsection 802.02, Materials. (a) Cement is revised as follows:

The total alkalis in the cementitious material (Portland cement, Portland – Limestone cement, fly ash or slag cement) shall not exceed 5 lb/cu yd (3 kg/cu m).
Section 804 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection 804.02 Materials (b) Wire and Wire Fabric is hereby deleted and the following is substituted therefor:

(b) Wire and Welded Wire Reinforcement. Wire, when used as reinforcement in concrete, shall conform to the requirements of AASHTO M 336. For plain wire, Grade 70 shall be furnished unless otherwise specified.

Welded wire reinforcement, when used as reinforcement in concrete, shall conform to the requirements of AASHTO M 336. For welded wire reinforcement, Grade 65 shall be furnished unless otherwise specified. The type of welded wire reinforcement shall be approved by the Engineer.
Division 800 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Section 807, Steel Structures, is hereby modified as follows:

The first paragraph Subsection 807.02 is hereby deleted and the following substituted therefor:

All structural steel fabricators shall be certified for AISC Category SBR (Simple Steel Bridge Structures), IBR (Intermediate Steel Bridge Structures - Major), ABR (Advanced Steel Bridge Structures - Major), or CPT (Bridge Component Standard), as appropriate, except as provided herein. In addition, the fabricator shall have the appropriate Complex Coatings Endorsement (P1, P2, or P3) which qualifies them to apply complex coating systems.
Section 808 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The first paragraph of Subsection 808.08 is hereby deleted and the following is substituted therefor:

808.08 Installation. Reinforced bearings shall be placed on level, uniform surfaces that are properly finished to the plan elevation and shall not be deformed, recessed, or irregular. Any misalignment in the support area of the bridge seat shall be corrected to form a level surface. All corrective action (including changes to the finished elevation of the concrete surface) greater than 1/8” (3 mm) must be submitted to the Engineer for review and approval. Reinforced bearings shall be set level in their specified position and shall have uniform bearing upon the support area. Bottom external load plates (masonry plates), when used, shall be set on unreinforced pads. Preformed fabric pads meeting the requirements of Subsection 807.15(a) may be used in lieu of unreinforced pads.
Section 808 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The third and fourth paragraph of Subsection 808.02 Materials is hereby deleted and the following is substituted therefor:

Steel lamina shall be rolled mild steel confirming to ASTM A709, Grade 36 [250] (except that Charpy V-Notch Impact tests are not required), ASTM A 1011, SS, or HSLAS, or equivalent, shall have a minimum yield strength of 30,000 psi (205 MPa), and shall be ordered to the nominal thickness specified on the plans.

External load plates shall conform to the requirements of ASTM A709, Grade 36 (250), 50 (345), or 50W (345W) as noted on the plans, except that Charpy V-Notch Impact tests are not required.

The following is added to Subsection 808.04 Tolerances

(b) External load plates:
   5) Relation to centerline of bearing ........ ± 1/8” (± 3 mm)
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

EDITION OF 2014

PROPOSAL DOCUMENTS AND SCHEDULE OF ITEMS
PROPOSAL FOR CONSTRUCTING:
THE PURPOSE OF THIS PROJECT IS TO WIDEN TO SIX LANES, MAKE INTERCHANGE IMPROVEMENTS, AND REPLACE THREE STRUCTURES ON HIGHWAY 67, IN JACKSONVILLE, IN PULASKI COUNTY. THIS PROJECT CONSISTS OF CLEARING AND GRUBBING, REMOVAL AND DISPOSAL ITEMS, EARTHWORK, TRENCHING AND SHOULDER PREPARATION, AGGREGATE BASE COURSE, CRUSHED STONE BASE COURSES, ACHM BASE, BINDER, AND SURFACE COURSES, COLD MILLING ASPHALT PAVEMENT, ACHM PATCHING OF EXISTING ROADWAY, PORTLAND CEMENT CONCRETE PAVEMENT, APPROACH SLABS AND GUTTERS, PORTLAND CEMENT CONCRETE PAVEMENT PATCHING, MAINTENANCE OF TRAFFIC, MINOR DRAINAGE, EROSION CONTROL, CONCRETE BARRIER WALL, CONCRETE ISLAND AND WALKS, CONCRETE CURB AND GUTTER, Rumble STRIPS, TRAFFIC SIGNAL ITEMS, OVERHEAD SIGN STRUCTURES, SHORING, CONSTRUCT CONTINUOUS PLATE GIRDER UNIT A AND B STRUCTURES (AVERAGE LENGTH 211.58'), CONSTRUCT A DOUBLE R.C. BOX CULVERT (TOTAL LENGTH 43.17'), PAVEMENT MARKING, AND MISCELLANEOUS ITEMS.

State Highway 67, Section 10, in PULASKI County, Arkansas, in accordance with Standard Specifications for Highway Construction, Edition of 2014; the Supplemental Specifications and Special Provisions attached hereto; and the Construction Plans on file in the Office of the State Highway Commission, designated as

Job CA0604 FEDERAL AID PROJECT ACNHPP-9222(14)

Job Name: MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)

said project being approximately 1.986 miles in length.

Proposal received until 10:00 a.m. on September 21, 2022

TO THE ARKANSAS STATE HIGHWAY COMMISSION:

Gentlemen: By submission of your bid, you agree to the following:

It is hereby certified that a careful examination has been made of the Plans, Specifications, Supplemental Specifications, Special Provisions, and Form of Contract and the site of the work throughout its whole extent. On the basis of the Plans, Specifications, Supplemental Specifications, Special Provisions, and Form of Contract, the bidder proposes to furnish all necessary machinery, equipment, tools, labor and other means of construction, and to furnish all materials as specified, in the manner and at the time prescribed, and to finish the entire project within the time hereinafter proposed. The bidder understands that the quantities of work mentioned herein are approximate only, and are subject to increase or decrease, and hereby proposes to perform all quantities of work, whether increased or decreased, in accordance with the provisions of the Specifications, and at the unit prices bid in the attached Schedule of Items.

Receipt is hereby specifically acknowledged, and complete examination expressly guaranteed of the following:

2. Supplemental Specifications.
5. Schedule of Items.

The bidder further proposes to perform all Extra Work that may be required, on the basis provided in the Specifications, and to give such work personal attention, and to secure economical performance.

The bidder further proposes to execute the contract agreement, and to furnish satisfactory bonds within ten days after he has received notice that he has been awarded the contract. The bidder further agrees to begin work when ordered by the Engineer, or within ten days thereafter, and to complete the work within the number of calendar days bid by the bidder in accordance with the Job Special Provision “Site Use (A+C Method)-Calendar Day Contract.”
The bidder also proposes to furnish a surety Performance bond or bonds in a sum equal to the full amount of the contract and a surety Payment bond or bonds in a sum equal to 80% of the full amount of the contract. These bonds shall not only serve to guarantee the completion of the work and payment of all bills and claims by the bidder, but also to guarantee the excellence of both workmanship and material until the work is finally accepted and the provisions of the Plans, Specifications and Special Provisions fulfilled.

The bidder shall furnish a Proposal Guaranty in the form specified in Subsection 102.09 of the Specifications, in the amount of five percent (5%) of the total amount bid, which is submitted as a guarantee of the good faith of the proposal, and that the Bidder will enter into written contract, as provided, to do the work should the award be made to him; and it is hereby agreed that if, at any time other than as provided in Subsection 102.11 of the Standard Specifications, Withdrawal/Modification of Proposals, the bidder should withdraw his proposal, or should fail to execute the contract and furnish satisfactory bonds as herein provided, if his proposal is accepted, the Arkansas State Highway Commission, in either of such events, shall be entitled and is hereby given the right to retain the Proposal Guaranty, not as a penalty, but as liquidated damages, it being understood and agreed by the bidder that the amount of the Proposal Guaranty is a reasonable sum to be fixed as liquidated damages considering the damages the Arkansas State Highway Commission will sustain in the event of the bidder's withdrawal of his proposal, or failure to execute the contract and furnish satisfactory bonds if his proposal is accepted, and said amount is herein agreed upon and fixed as liquidated damages because of the difficulty of ascertaining the exact amount of damage that may be sustained by reason of the above set out circumstances.
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Arkansas Department of Transportation
Schedule of Items

State Job No.: CA0604
Job Name: MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)
Federal Aid Project: ACNHPP-9222(14)

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Arkansas Department of Transportation  
Schedule of Items

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<th>Line Number</th>
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# Arkansas Department of Transportation

## Schedule of Items

**State Job No.: CA0604**

**Job Name:** MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)

**Federal Aid Project:** ACNHPP-9222(14)

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<td>620 - LIME</td>
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**Date Estimated:** 6/3/2022

**Date Revised:** 0109
Arkansas Department of Transportation  
Schedule of Items

State Job No.: CA0604  
Job Name: MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)  
Federal Aid Project: ACNHPP-9222(14)

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<td>621 - OBLITERATION OF SEDIMENT BASIN</td>
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Arkansas Department of Transportation  
Schedule of Items

State Job No.: CA0604  
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Federal Aid Project: ACNHPP-9222(14)

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Arkansas Department of Transportation  
Schedule of Items  

State Job No.: CA0604  
Job Name: MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)  
Federal Aid Project: ACNHP-9222(14)  

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<th>Unit Bid Price</th>
<th>Price Extension</th>
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<td>SS&amp;714 - TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32'-54')</td>
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<td>SP - TILT TOWER (40') WITH CAMERA</td>
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## Arkansas Department of Transportation
### Schedule of Items

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<tr>
<td>Job Name:</td>
<td>MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)</td>
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<td>Federal Aid Project:</td>
<td>ACNHP-9222(14)</td>
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<tr>
<td>Date Estimated:</td>
<td>6/3/2022</td>
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<td>Date Revised:</td>
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<th>Unit Bid Price</th>
<th>Price Extension</th>
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<tr>
<td>0276</td>
<td>SP - STEEL CANTILEVER SIGN STRUCTURE (___________)</td>
<td>1.000 EACH</td>
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<tr>
<td>0277</td>
<td>SPSS725 - GUIDE SIGN-ROADSIDE MOUNTED (DEMOUNTABLE LEGEND)</td>
<td>306.000 SQFT</td>
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<tr>
<td>0278</td>
<td>SPSS725 - GUIDE SIGN-OVERHEAD MOUNTED (DEMOUNTABLE LEGEND)</td>
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<td>0279</td>
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<td>SPSS727 - EXIT NUMBER PANEL (TYPE A)</td>
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<td>0282</td>
<td>SPSS727 - EXIT NUMBER PANEL (TYPE B)</td>
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<td>0283</td>
<td>SP - BARRIER WALL DELINEATOR</td>
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<td>0284</td>
<td>SP - OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORTS (TYPE G-1)</td>
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<td>0285</td>
<td>SP - OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORTS (TYPE G-2)</td>
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<td>0286</td>
<td>SP - OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORTS (TYPE G2-1)</td>
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<td>0290</td>
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<td>0291</td>
<td>SS&amp;731 - TEMPORARY IMPACT ATTENUATION BARRIER</td>
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<td>0292</td>
<td>SS&amp;731 - TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)</td>
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<td>SS&amp;731 - TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)</td>
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<td>SS&amp;732 - CRASH CUSHION</td>
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<td>0295</td>
<td>733 - VIDEO DETECTOR RELOCATION</td>
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<td>0296</td>
<td>SP - VIDEO DETECTOR ROTATION</td>
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<td>0297</td>
<td>SP&amp;733 - VIDEO DETECTOR (CLR)</td>
<td>78.000 EACH</td>
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<tr>
<td>0298</td>
<td>733 - VIDEO CABLE</td>
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<td>0299</td>
<td>733 - VIDEO MONITOR (CLR)</td>
<td>12.000 EACH</td>
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## Arkansas Department of Transportation
### Schedule of Items

**State Job No.**: CA0604  
**Job Name**: MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)  
**Federal Aid Project**: ACNHPP-9222(14)

<table>
<thead>
<tr>
<th>Line Number</th>
<th>Item Code and Description</th>
<th>Estimated Quantity</th>
<th>Unit Bid Price</th>
<th>Price Extension</th>
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<tbody>
<tr>
<td>0300</td>
<td>SP&amp;733 - VIDEO PROCESSOR, EDGE CARD (2 CAMERA)</td>
<td>35.000 EACH</td>
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<td>0301</td>
<td>SP&amp;733 - VEHICLE DETECTOR RACK (16 CHANNEL)</td>
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<td>0302</td>
<td>SP&amp;733 - VEHICLE DETECTOR RACK (12 CHANNEL)</td>
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<td>0303</td>
<td>801 - UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE</td>
<td>1,455.000 CUYD</td>
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<tr>
<td>0304</td>
<td>801 - UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY</td>
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<td>SP - AGGREGATE PIER</td>
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<td>0306</td>
<td>SS&amp;802 - CLASS S CONCRETE-ROADWAY</td>
<td>2,179.940 CUYD</td>
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<td>SS&amp;802 - CLASS S CONCRETE-BRIDGE</td>
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<td>0308</td>
<td>SPSS802 - CLASS S(AE) CONCRETE-BRIDGE</td>
<td>1,729.400 CUYD</td>
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<td>0309</td>
<td>SP - RETAINING WALL</td>
<td>52,025.000 SQFT</td>
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<td>0310</td>
<td>SP - TEMPORARY RETAINING WALL</td>
<td>6,373.000 SQFT</td>
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<td>0311</td>
<td>SP - SOIL NAIL WALL</td>
<td>7,370.000 SQFT</td>
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<tr>
<td>0312</td>
<td>SP&amp;803 - CLASS 2 PROTECTIVE SURFACE TREATMENT</td>
<td>6,369.000 SQYD</td>
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<td>0313</td>
<td>SS&amp;804 - REINFORCING STEEL-ROADWAY (GRADE 60)</td>
<td>389,332.000 LB</td>
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<tr>
<td>0314</td>
<td>SS&amp;804 - REINFORCING STEEL-BRIDGE (GRADE 60)</td>
<td>277,760.000 LB</td>
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<td>0315</td>
<td>SS&amp;804 - EPOXY COATED REINFORCING STEEL (GRADE 60)</td>
<td>474,990.000 LB</td>
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<td>0316</td>
<td>SS&amp;805 - STEEL PILING (HP 14X73)</td>
<td>10,185.000 LF</td>
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<td>0317</td>
<td>SS&amp;806 - METAL BRIDGE RAILING (TYPE H2)</td>
<td>2,252.000 LF</td>
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<td>0318</td>
<td>SS&amp;806 - TRANSITIONAL APPROACH RAILING</td>
<td>8.000 EACH</td>
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<tr>
<td>0319</td>
<td>SPSS807 - STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)</td>
<td>1,842,150.000 LB</td>
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<td>0320</td>
<td>SS&amp;807 - PAINTING STRUCTURAL STEEL</td>
<td>921.800 TON</td>
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<td>0321</td>
<td>SS&amp;808 - ELASTOMERIC BEARINGS</td>
<td>56,721.000 CUIN</td>
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<td>0322</td>
<td>SS&amp;809 - SILICONE JOINT SEALANT</td>
<td>544.000 LF</td>
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<td>0323</td>
<td>812 - BRIDGE NAME PLATE (TYPE D)</td>
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<tr>
<td>0324</td>
<td>816 - DUMPED RIPRAP</td>
<td>10.000 CUYD</td>
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<tr>
<td>0325</td>
<td>SS&amp;816 - CONCRETE RIPRAP</td>
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<td>0326</td>
<td>SP - SHORING (SITE NO. 2)</td>
<td>1.000 L.S.</td>
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</table>
Arkansas Department of Transportation  
Schedule of Items

State Job No.: CA0604  
Job Name: MAIN ST. – VANDENBERG BLVD. (WIDENING) (JACKSONVILLE) (F)  
Federal Aid Project: ACNHPP-9222(14)  
Date Estimated: 6/3/2022  
Date Revised: 0327

<table>
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<td>0327</td>
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<td>SP - OVERHEAD DMS ASSEMBLY</td>
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<td>0332</td>
<td>SP - REMOVE AND REINSTALL THRIE BEAM TERMINAL</td>
<td>1.000 EACH</td>
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<tr>
<td>0333</td>
<td>SP - PLANE MOULDINGS</td>
<td>9.000 EACH</td>
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Section 01 Total: __________________ 
Subtotal: __________________

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<tr>
<td>0334</td>
<td>601 - MOBILIZATION (UNIT BID AMOUNT MAY NOT EXCEED 5% OF SUBTOTAL)</td>
<td>1.000 L.S.</td>
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Bid Total: __________________

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

________________________ Days X $70,000/Day = $________________________ (C)
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENT TO PROPOSAL
ANTI-COLLUSION AND DEBARMENT CERTIFICATION

FAILURE TO EXECUTE AND SUBMIT THIS CERTIFICATION SHALL RENDER THIS
BID NONRESPONSIVE AND NOT ELIGIBLE FOR AWARD CONSIDERATION.

As a condition precedent to the acceptance of the bidding document for this project, the bidder shall file
this Affidavit executed by, or on behalf of the person, firm, association, or corporation submitting the
bid. The original of this Affidavit shall be filed with the Arkansas Department of Transportation at the
time proposals are submitted.

AFFIDAVIT

I hereby certify, under penalty of perjury under the laws of the United States and/or the State of
Arkansas, that the bidder listed below has not, either directly or indirectly, entered into any agreement,
participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in
connection with the submitted bid for this project, is not presently barred from bidding in any other
jurisdiction as a result of any collusion or any other action in restraint of free competition, and that the
foregoing is true and correct.

Further, that except as noted below, the bidder, or any person associated therewith in the capacity of
owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position
involving the administration of Federal funds:

a. is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility
   by any Federal, State, or Local agency;

b. has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal,
   State, or Local agency within the past 3 years;

c. does not have a proposed debarment pending; and

d. has not been indicted, convicted, or had an adverse civil judgment rendered by a court of competent
   jurisdiction in any matter involving fraud or official misconduct within the past 3 years.
ARKANSAS DEPARTMENT OF TRANSPORTATION
SUPPLEMENT TO PROPOSAL
ANTI-COLLLUSION AND DEBARMENT CERTIFICATION

FAILURE TO EXECUTE AND SUBMIT THIS CERTIFICATION SHALL RENDER THIS BID NONRESPONSIVE AND NOT ELIGIBLE FOR AWARD CONSIDERATION.

EXCEPTIONS:

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<tr>
<th>APPLIED TO</th>
<th>INITIATING AGENCY</th>
<th>DATES OF ACTION</th>
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Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

Job No. ____________________________ (Name of Bidder)
F.A.P. No. ____________________________ (Signature)
(Date Executed) ____________________________ (Title of Person Signing)

The following Notary Public certification is **OPTIONAL** and may or may not be completed at the contractor's discretion.

State of ____________________________
County of ____________________________ ss.

__________________________, being duly sworn, deposes and says that he is ____________________________, of ____________________________, (Name of Bidder) and that the above statements are true and correct.

Subscribed and Sworn to before me this _____ day of ____________________________, 20_____. My commission expires: ____________________________.

__________________________ (Notary Public)
Pursuant to Arkansas Code Annotated § 25-1-503, a public entity shall not enter into a contract valued at $1,000 or greater with a company unless the contract includes a written certification that the person or company is not currently engaged in, and agrees for the duration of the contract not to engage in, a boycott of Israel.

By signing below, the Contractor agrees and certifies that they do not boycott Israel and will not boycott Israel during the remaining aggregate term of the contract.

If a company does boycott Israel, see Arkansas Code Annotated § 25-1-503.

<table>
<thead>
<tr>
<th>Bid Number/Contract Number</th>
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<tbody>
<tr>
<td>Description of product or service</td>
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<tr>
<td>Contractor name</td>
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</table>

Contractor Signature: ____________________________ Date: _______________
The prospective contractor certifies, by signing and submitting this proposal, to the best of his or her knowledge and belief that:

1. No Federal appropriated funds have been paid or will be paid, by or on his or her behalf, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a member of Congress, an officer or employee of Congress, or any employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal-Aid contract, the prospective contractor shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities", in accordance with its instructions. (Available from Arkansas Department of Transportation, Program Management Division.)

This Certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. This Certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code.

During the period of performance of the contract, the contractor and all lower tier subcontractors must file a Form-LLL at the end of each calendar year quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any previously filed disclosure form. Any person who fails to file the required Certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each failure.

The prospective contractor also agrees by submitting his or her proposal that he or she shall require that the language of this Certification be included in all lower tier subcontracts which exceed $100,000 and that all such subcontractors shall certify and disclose accordingly.
THIS CERTIFICATION SHALL BE COMPLETED BY THE BIDDER
AS PART OF THIS PROPOSAL

The bidder ____, proposed subcontractor ____, hereby certifies that he has ____, has not ____,
participated in a previous contract or subcontract subject to the equal opportunity clause, as required
by Executive Orders 10925, 11114, or 11246, and that he has ____, has not ____., filed with the
Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal
Government contracting or administering agency, or the former President's Committee on Equal
Employment Opportunity, all reports due under the applicable filing requirements.

(Currently, Standard Form 100 [EEO-1] is the only report required by the Executive Orders or their
implementing regulations)

Job No. ____________________________ ____________________________ (Company)
F.A.P. No. ____________________________ By: ____________________________
Date ____________________________ ____________________________ (Title)

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of
the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by bidders and proposed
subcontractors only in connection with contracts and subcontracts which are subject to the equal
opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause
are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Proposed prime contractors and subcontractors who have participated in a previous contract or
subcontract subject to the Executive Orders and have not filed the required reports should note that
41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor
submits a report covering the delinquent period or such other period specified by the Federal
Highway Administration or by the Director, Office of Federal Contract Compliance, U.S.
Department of Labor.
The Department is required by 49 CFR 26.11, to create and maintain a master bidder’s list of all firms attempting to participate on federally assisted projects. Therefore, the Contractor should provide the names and addresses of all subcontractors, truckers or material suppliers that bid or provided quotes on any item on the project, regardless of whether or not the quotes were used in preparing the proposal. DBE contractors should be indicated by placing an X in the box preceding the firm’s name. The general type of work to be performed, i.e., (01) removal and disposal items (including clearing and grubbing), (02) earthwork (including drainage items), (03) hauling, (04) paving (PCCP or ACHM), (05) miscellaneous concrete, (06) traffic control, (07) erosion control, (08) signals/electrical, (09) structures (includes steel suppliers), (10) material (aggregate) supplier (11) miscellaneous items should be shown.

<table>
<thead>
<tr>
<th>DBE</th>
<th>FIRM NAME ADDRESS</th>
<th>TYPE OF WORK (Enter Code)</th>
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ARKANSAS DEPARTMENT OF TRANSPORTATION

CERTIFICATION TO SUBMIT DBE PARTICIPATION

JOB CA0604

FAILURE TO COMPLY WITH ONE OF THE FOLLOWING SHALL RENDER THIS BID NONRESPONSIVE AND NOT ELIGIBLE FOR AWARD CONSIDERATION

(1) SUBMITTAL OF REQUIRED DBE PARTICIPATION INFORMATION,
(2) SUBMITTAL OF DOCUMENTATION OF GOOD FAITH EFFORTS, OR
(3) SUBMITTAL OF THE CERTIFICATION TO SUBMIT DBE PARTICIPATION

By submitting an internet proposal, the bidder irrevocably certifies that an amount equal to or greater than the Disadvantaged Business Enterprise (DBE) Goal established for this project will be performed by certified Disadvantaged Business Enterprise firms and the required DBE participation information will be submitted within 5 calendar days of the date of the bid opening.

Within five (5) calendar days of the date of the bid letting, all bidders shall furnish the required DBE Participation information to the Department on the forms provided to be considered a responsive bid. If a conditional award has been made and the successful bidder has not furnished the required information, the proposal will be rejected and their proposal guaranty forfeited. The proposal guaranty shall become property of the Commission, not as a penalty, but in liquidation of damages, sustained to the DBE Program. Award may then be made to the next lowest, responsive bidder or the work may be re-advertised as the Commission may decide.

Only work, materials, or services that will actually be provided by DBE firms will be credited toward the goal. The DBE firm’s certification must be fully in effect at the letting date.

As an alternative, documentation of Good Faith Efforts to meet the DBE goal may be submitted to the Program Management Division prior to the deadline for proposals to be received.
NOTE: PROPOSED PARTICIPATION BY DBEs MAY BE SHOWN BELOW AND SUBMITTED WITH BIDDER’S PROPOSAL, OR THE REQUIRED INFORMATION MAY BE SUBMITTED IN KEEPING WITH THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS “GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION” AND “DISADVANTAGED BUSINESS ENTERPRISE BIDDER’S RESPONSIBILITIES”.

As provided in the Special Provision “Goals for Disadvantaged Business Enterprise Participation”, the undersigned bidder proposes to use the certified DISADVANTAGED BUSINESS ENTERPRISE (DBE) subcontractors listed below to meet the goal of 9.0% of the total contract by DBEs. Only work or services that will actually be provided by the DBE firm(s) should be shown.

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If any firm listed above is a regular dealer, but not a manufacturer, the total amount of the agreement and the amount to be credited (60%) should be recorded on this form.

Total for DBEs - $___________________ or __________ % of bid.

By: ______________________________

(Contractor)

Title: ____________________________

The named DBE subcontractors confirm their participation in the contract as provided in the commitment.

DBE Firm: __________________________ DBE Owner or Authorized Representative’s Signature: __________________________

1. __________________________
2. __________________________
3. __________________________
4. __________________________
Contractor’s Certification Statement for National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit Number ARR150000.

All Contractors operating on the site shall have the responsibility for compliance with Section 110 of the Standard Specifications for their operations, including, but not limited to: Good housekeeping practices, spill prevention, spill reporting and clean-up, and product specific practices such as limiting the discharge of concrete waste water to areas specified in the SWPPP.

Contractor Printed Name:__________________________ Signature: __________________________ Title: __________________________
Company Name: __________________________ Date: __________________________
Company Address: __________________________ Telephone No.: __________________________ ArDOT Job Number: _______