

PROJECT MANUAL

Paved Trail Repair

Weston Bend State Park

Weston, Missouri

Designed By: Clark & Enersen
2020 Baltimore Avenue, Suite 300
Kansas City, Missouri 64108

Date Issued: 9/16/2022

Project No.: X2117-01

STATE *of* MISSOURI

OFFICE *of* ADMINISTRATION
Facilities Management, Design & Construction

SECTION 00 01 07 - PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT NUMBER: (X2117-01 "Weston Bend State Park – Paved Trail Repair Design & Phase 1 Construction")

THE FOLLOWING DESIGN PROFESSIONALS HAVE SIGNED AND SEALED THE ORIGINAL PLANS AND SPECIFICATIONS FOR THIS PROJECT, WHICH ARE ON FILE WITH THE DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION:



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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section provides a comprehensive list of the drawings that comprise the Bid Documents for this project.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

- A. The following list of drawings is a part of the Bid Documents:

	<u>TITLE</u>	<u>SHEET #</u>	<u>DATE</u>
1.	Title Sheet	Sheet G-000	09/16/2022
2.	Sheet Index and General Information	Sheet G-001	09/16/2022
3.	Existing Conditions and Demolition Plan	Sheet C-101	09/16/2022
4.	Site Plan	Sheet C-201	09/16/2022
5.	Grading Plan	Sheet C-301	09/16/2022
6.	Site Details	Sheet C-601	09/16/2022

END OF SECTION 00 01 15

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SECTION 001116 - INVITATION FOR BID

1.0 OWNER:

- A. The State of Missouri
Office of Administration,
Division of Facilities Management, Design and Construction
Jefferson City, Missouri

2.0 PROJECT TITLE AND NUMBER:

- A. Paved Trail Repair
Weston Bend State Park
Weston, Missouri
Project No.: X2117-01

3.0 BIDS WILL BE RECEIVED:

- A. Until: 1:30 PM, Tuesday, August 22, 2023
- B. **Only electronic bids on MissouriBUYS shall be accepted: <https://missouribuy.com>. Bidder must be registered to bid.**

4.0 DESCRIPTION:

- A. Scope: Project consists of the replacement of two culverts with a single culvert beneath a portion of existing paved trail.
- B. MBE/WBE/SDVE Goals: MBE 10%, WBE 10%, and SDVE 3%. **NOTE: Only MBE/WBE firms certified by the State of Missouri Office of Equal Opportunity as of the date of bid opening, or SDVE(s) meeting the requirements of Section 34.074, RSMo and 1 CSR 30-5.010, can be used to satisfy the MBE/WBE/SDVE participation goals for this project.**
- C. ****NOTE:** Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.
- D. In addition to the State of Missouri MBE/WBE/SDVE participation goals set forth herein and in the bid documents for this project, the contractor on the federally funded/assisted construction project is subject to federal Executive Order 11246. The bidder's attention is drawn to the Notice of Requirement for Affirmative Action To Ensure Equal Employment Opportunity (Executive Order 11246 & 41 C.F.R. 60- 4.2) in Section 007333, SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS, which is incorporated by reference.

5.0 PRE-BID MEETING:

- A. Place/Time: 11 AM, Tuesday, August, 8, 2023, at Weston Bend State Park maintenance facility, 16600 MO. 45 Weston, MO 64098. Maintenance shop will be the 2nd right after entering the park gates.
- B. Access to State of Missouri property requires presentation of a photo ID by all persons

6.0 HOW TO GET PLANS & SPECIFICATIONS:

- A. View Only Electronic bid sets are available at no cost or paper bid sets for a deposit of \$30 from American Document Solutions (ADS). **MAKE CHECKS PAYABLE TO: American Document Solutions. Mail to: American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433, <https://www.adsplanroom.net>.** NOTE: Prime contractors will be allowed a maximum of two bid sets at the deposit rate shown above. Other requesters will be allowed only one bid set at this rate. Additional bid sets or parts thereof may be obtained by any bidder at the cost of printing and shipping by request to American Document Solutions at the address shown above. **Bidder must secure at least one bid set to become a planholder.**
- B. **Refunds: Return plans and specifications in unmarked condition within 15 working days of bid opening to American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433. Deposits for plans not returned within 15 working days shall be forfeited.**
- C. Information for upcoming bids, including downloadable plans, specifications, Invitation for Bid, bid tabulation, award, addenda, and access to the ADS planholders list, is available on the Division of Facilities Management, Design and Construction's web site: <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>.

7.0 POINT OF CONTACT:

- A. Designer: Clark & Enersen, Sean Ray, 816-474-8237, email: sean.ray@clarkenersen.com
- B. Project Manager: Jared Cook, 573-690-6733, email: jared.cook2@oa.mo.gov

8.0 GENERAL INFORMATION:

- A. The State reserves the right to reject any and all bids and to waive all informalities in bids. No bid may be withdrawn for a period of 20 working days subsequent to the specified bid opening time. The contractor shall pay not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, as determined by the Missouri Department of Labor and Industrial Relations and as set out in the detailed plans and specifications.
- B. Bid results will be available at <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans> after it is verified that at least one bid is awardable and affordable.
- C. This is a federally funded/assisted construction project that requires compliance by the awarded contractor with applicable federal laws and regulations. The Bidder should review Section 007333, SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS, which is made part of this solicitation and will be made part of the resulting contract by reference.

- D. The State of Missouri, OA-FMDC, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, businesses owned and controlled by socially and economically disadvantaged individuals will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, religion, creed, sex, age, ancestry or national origin in consideration for an award. Federal Land and Water Conservation Funds are being used in this project, and all relevant federal, state and local requirements apply.

Very Important MissouriBUYS Instructions to Help Submit a Bid Correctly

- A. The bidder shall submit his or her bid and all supporting documentation on MissouriBUYS eProcurement System. No hard copy bids shall be accepted. Go to <https://missouribuys.mo.gov> and register. The bidder must register and complete a profile fully with all required documents submitted prior to submitting a bid.
- B. Once registered, log in.
1. Under "Solicitation" select "View Current Solicitations."
 2. Under "Filter by Agency" select "OA-FMDC-Contracts Chapter 8", then click "Filter Solicitation" button.
 3. Select "Active Solicitations" tab.
 4. To see the Solicitation Summary, click on the Project Number and the summary will open. Click each heading to open detailed information.
- C. Here are simplified instructions for uploading the bid to MissouriBUYS:
1. Find the solicitation by completing Steps 1 through 4 above.
 2. Select the three dots under "Actions." Select "Add New Response."
 3. When the Quote box opens, give the response a title and select "OK."
 4. The detailed solicitation will open. Select "Check All" for the Original Solicitation Documents, open each document, and select "Accept." If this step is not completed, a bid cannot be uploaded. Scroll to the bottom of the page and select "Add Attachments." If you do not see this command, not all documents have been opened and accepted.
 5. The Supplier Attachments box will open. Select "Add Attachment" again.
 6. The Upload Documents box will open. Read the instructions for uploading. Disregard the "Confidential" check box.
 7. Browse and attach up to 5 files at a time. Scroll to bottom of box and select "Upload." The Supplier Attachments box will open. Repeat Steps 5 through 7 if more than 5 files are to be uploaded.
 8. When the Supplier Attachments box opens again and uploading is complete, select "Done." A message should appear that the upload is successful. If it does not, go to the Bidder Response tab and select "Submit."
 9. The detailed solicitation will open. At the bottom select "Close."
- D. Any time a bidder wants to modify the bid, he or she will have to submit a new one. FMDC will open the last response the bidder submits. The bidder may revise and submit the bid up to the close of the solicitation (bid date and time). Be sure to allow for uploading time so that the bid is successfully uploaded prior to the 1:30 PM deadline; we can only accept the bid if it is uploaded before the deadline.
- E. If you want to verify that you are uploading documents correctly, please contact Paul Girouard: 573-751-4797, paul.girouard@oa.mo.gov ; April Howser: 573-751-0053, April.Howser@oa.mo.gov ; or Mandy Roberson: 573-522-0074, Mandy.Roberson@oa.mo.gov.
- F. If you are experiencing login issues, please contact Web Procure Support (Proactis) at 866-889-8533 anytime from 7:00 AM to 7:00 PM Central Time, Monday through Friday. If you try using a userid or password several times that is incorrect, the system will lock you out. Web Procure Support is the only option to unlock you! If you forget your userid or password, Web Procure Support will provide a temporary userid or password. Also, if it has been a while since your last successful login and you receive an "inactive" message, contact Web Procure (Proactis). If you are having a registration issue, you may contact Cathy Holliday at 573-751-3491 or by email: cathy.holliday@oa.mo.gov.

IMPORTANT REMINDER REGARDING REQUIREMENT FOR OEO CERTIFICATION

A. SECTION 002113 – INSTRUCTIONS TO
BIDDERS: Article 15.0, Section D1:

As of July 1, 2020, all MBE, WBE, and MBE/WBE contractors, subcontractors, and suppliers must be certified by the State of Missouri, Office of Equal Opportunity. No certifications from other Missouri certifying agencies will be accepted.

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SECTION 002113 – INSTRUCTIONS TO BIDDERS

1.0 - SPECIAL NOTICE TO BIDDERS

- A. If awarded a contract, the Bidder's employees, and the employees of all subcontractors, who perform the work on the project must adhere to requirements in Section 013513 – Site Security and Health Requirements as applicable per Agency.
- B. The Bidder's prices shall include all city, state, and federal sales, excise, and similar taxes that may lawfully be assessed in connection with the performance of work, and the purchased of materials to be incorporated in the work. THIS PROJECT IS NOT TAX EXEMPT.

2.0 - BID DOCUMENTS

- A. The number of sets obtainable by any one (1) party may be limited in accordance with available supply.
- B. For the convenience of contractors, sub-contractors and suppliers, copies of construction documents are on file at the office of the Director, Division of Facilities Management, Design and Construction and on the Division's web site - <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>.

3.0 - BIDDERS' OBLIGATIONS

- A. Bidders must carefully examine the entire site of the work and shall make all reasonable and necessary investigations to inform themselves thoroughly as to the facilities available as well as to all the difficulties involved in the completion of all work in accordance with the specifications and the plans. Bidders are also required to examine all maps, plans and data mentioned in the specifications. No plea of ignorance concerning observable existing conditions or difficulties that may be encountered in the execution of the work under this contract will be accepted as an excuse for any failure or omission on the part of the contractor to fulfill in every detail all of the requirements of the contract, nor accepted as a basis for any claims for extra compensation.
- B. Under no circumstances will contractors give their plans and specifications to another contractor. Any bid received from a contractor whose name does not appear on the list of plan holders may be subject to rejection.

4.0 - INTERPRETATIONS

- A. No bidder shall be entitled to rely on oral interpretations as to the meaning of the plans and specifications or the acceptability of alternate products, materials, form or type of construction. Every request for interpretation shall be made in writing and submitted with all supporting documents not less than five (5) working days before opening of bids. Every interpretation made to a bidder will be in the form of an addendum and will be sent as promptly as is practicable to all persons to whom plans and specifications have been issued. All such addenda shall become part of the contract documents.
- B. Approval for an "acceptable substitution" issued in the form of an addendum as per Paragraph 4A above, and as per Article 3.1 of the General Conditions; ACCEPTABLE SUBSTITUTIONS shall constitute approval for use in the project of the product.
- C. An "acceptable substitution" requested after the award of bid shall be approved if proven to the satisfaction of the Owner and the Designer as per Article 3.1, that the product is acceptable in design, strength, durability, usefulness, and convenience for the purpose intended. Approval of the substitution after award is at the sole discretion of the Owner.
- D. A request for "Acceptable Substitutions" shall be made on the Section 006325 Substitution Request Form. The request shall be sent directly to the project Designer. A copy of said request should also be mailed to the Owner, Division of Facilities Management, Design and Construction, Post Office Box 809, Jefferson City, Missouri 65102.

5.0 - BIDS AND BIDDING PROCEDURE

- A. Bidders shall submit all submission forms and accompanying documents listed in SECTION 004113 – BID FORM, Article 5.0, ATTACHMENTS TO BID by the stated time or their bid will be rejected for being non-responsive.

Depending on the specific project requirements, **the following is a GENERIC list** of all possible bid forms that may be due with bid submittals and times when they may be due. Please check for specific project requirements on the proposal form (Section 004113). *Not all of the following bid forms may be required to be submitted.*

Bid Submittal – due before stated date and time of bid opening (see IFB):

004113	Bid Form (all pages are always required)
004322	Unit Prices Form
004336	Proposed Subcontractors Form
004337	MBE/WBE/SDVE Compliance Evaluation Form
004338	MBE/WBE/SDVE Eligibility Determination for Joint Ventures
004339	MBE/WBE/SDVE GFE Determination
004340	SDVE Business Form
004541	Affidavit of Work Authorization
004545	Anti-Discrimination Against Israel Act Certification form

- B. All bids shall be submitted without additional terms and conditions, modification or reservation on the bid forms with each space properly filled. Bids not on these forms will be rejected.
- C. All bids shall be accompanied by a bid bond executed by the bidder and a duly authorized surety company, certified check, cashier's check or bank draft made payable to the Division of Facilities Management, Design and Construction, State of Missouri, in the amount indicated on the bid form, Section 004113. Failure of the contractor to submit the full amount required shall be sufficient cause to reject his bid. The bidder agrees that the proceeds of the check, draft or bond shall become the property of the State of Missouri, if for any reason the bidder withdraws his bid after closing, or if on notification of award refuses or is unable to execute tendered contract, provide an acceptable performance and payment bond, provide evidence of required insurance coverage and/or provide required copies of affirmative action plans within ten (10) working days after such tender.
- D. The check or draft submitted by the successful bidder will be returned after the receipt of an acceptable performance and payment bond and execution of the formal contract. Checks or drafts of all other bidders will be returned within a reasonable time after it is determined that the bid represented by same will receive no further consideration by the State of Missouri. Bid bonds will only be returned upon request.

6.0 - SIGNING OF BIDS

- A. A bid from an individual shall be signed as noted on the Bid Form.
- B. A bid from a partnership or joint venture shall require only one signature of a partner, an officer of the joint venture authorized to bind the venture or an attorney-in-fact. If the bid is signed by an officer of a joint venture or an attorney-in-fact, a document evidencing the individual's authority to execute contracts should be included with the bid form.
- C. A bid from a limited liability company (LLC) shall be signed by a manager or a managing member of the LLC.
- D. A bid from a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation manually written. Title of office held by the person signing for the corporation shall appear, along with typed name of said individual. Corporate license number shall be provided and, if a corporation organized in a state other than Missouri, a Certificate of Authority to do business in the State of Missouri shall be attached. In addition, for corporate proposals, the President or Vice-President should sign as the bidder. If the signator is other than the corporate president or vice president, the bidder must provide satisfactory evidence that the signator has the legal authority to bind the corporation.

- E. A bid should contain the full and correct legal name of the Bidder. If the Bidder is an entity registered with the Missouri Secretary of State, the Bidder's name on the bid form should appear as shown in the Secretary of State's records.
- F. The Bidder should include its corporate license number on the Bid Form and, if the corporation is organized in a state other than Missouri, a Certificate of Authority to do business in the State of Missouri shall be attached to the bid form.

7.0 - RECEIVING BID SUBMITTALS

- A. It is the bidder's sole responsibility to assure receipt by Owner of bid submittals by the date and time specified in the Invitation for Bid. Bids received after the date and time specified shall not be considered by the Owner.
- B. Bids must be submitted through the MissouriBUYS statewide eProcurement system (<https://www.missouribuys.mo.gov/>) in accordance with the instructions for that system. The Owner shall only accept bids submitted through MissouriBUYS. Bids received by the Owner through any other means, including hard copies, shall not be considered and will be discarded by the Owner unopened.
- C. To respond to an Invitation for Bid, the Bidder must first register with MissouriBUYS by going through the MissouriBUYS Home Page (<https://www.missouribuys.mo.gov/>), clicking the "Register" button at the top of the page, and completing the Vendor Registration. Once registered, the Bidder accesses its account by clicking the "Login" button at the top of the MissouriBUYS Home Page. Enter your USERID and PASSWORD, which the Bidder will select. Under Solicitations, select "View Current Solicitations." A new screen will open. Under "Filter by Agency" select "OA-FMDC-Contracts Chapter 8." Under "Filter by Opp. No." type in the State Project Number. Select "Submit." Above the dark blue bar, select "Other Active Opportunities." To see the Solicitation Summary, single click the Opp. No. (Project Number) and the summary will open. Single quick click each blue bar to open detailed information. The Bidder must read and accept the Original Solicitation Documents and complete all identified requirements. The Bidder should download and save all of the Original Solicitation Documents on its computer so that the Bidder can prepare its response to these documents. The Bidder should upload its completed response to the downloaded documents as an attachment to the electronic solicitation response.
- D. Step-by-step instructions for how a registered vendor responds to a solicitation electronically are provided in Section 001116 – Invitation For Bid.
- E. The Bidder shall submit its bid on the forms provided by the Owner on MissouriBUYS with each space fully and properly completed, including all amounts required for alternate bids, unit prices, cost accounting data, etc. The Owner may reject bids that are not on the Owner's forms or that do not contain all requested information.
- F. No Contractor shall stipulate in his bid any conditions not contained in the specifications or standard bid form contained in the contract documents. To do so may subject the Contractor's bid to rejection.
- G. The completed forms shall be without interlineations, alterations or erasures.

8.0 - MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bidder may withdraw his bid at any time prior to scheduled closing time for receipt of bids, but no bidder may withdraw his bid for a period of twenty (20) working days after the scheduled closing time for receipt of bids.
- B. The Bidder shall modify his or her original bid by submitting a revised bid on MissouriBUYS.

9.0 - AWARD OF CONTRACT

- A. The Owner reserves the right to reject any and/or all bids and further to waive all informalities in bidding when deemed in the best interest of the State of Missouri.
- B. The Owner reserves the right to let other contracts in connection with the work, including but not by way of limitation, contracts for the furnishing and installation of furniture, equipment, machines, appliances and other apparatus.

- C. The Owner shall award a contract to the lowest, responsive, responsible Bidder in accordance with Section 8.250, RSMo. No contract will be awarded to any Bidder who has had a contract with the Owner terminated within the preceding twelve months for material breach of contract or who has been suspended or debarred by the Owner.
- D. Award of alternates, if any, will be made in numerical order unless all bids received are such that the order of acceptance of alternates does not affect the determination of the lowest, responsive, responsible bidder.
- E. No bid shall be considered binding upon the Owner until the written contract has been properly executed, a satisfactory bond has been furnished, evidence of required insurance coverage, submittal of executed Section 004541, Affidavit of Work Authorization form, documentation evidencing enrollment and participation in a federal work authorization program has been received and an affirmative action plan submitted. Failure to execute and return the contract and associated documents within the prescribed period of time shall be treated, at the option of the Owner, as a breach of bidder's obligation and the Owner shall be under no further obligation to bidder.
- F. If the successful bidder is doing business in the State of Missouri under a fictitious name, he shall furnish to Owner, attached to the Bid Form, a properly certified copy of the certificate of Registration of Fictitious Name from the State of Missouri, and such certificate shall remain on file with the Owner.
- G. Any successful bidder which is a corporation organized in a state other than Missouri shall furnish to the Owner, attached to the Bid Form, a properly certified copy of its current Certificate of Authority to do business in the State of Missouri, such certificate to remain on file with the Owner. No contract will be awarded by the Owner unless such certificate is furnished by the bidder.
- H. Any successful bidder which is a corporation organized in the State of Missouri shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate to remain on file with the Owner.
- I. Transient employers subject to Sections 285.230 and 285.234, RSMo, (out-of-state employers who temporarily transact any business in the State of Missouri) may be required to file a bond with the Missouri Department of Revenue. No contract will be awarded by the Owner unless the successful bidder certifies that he has complied with all applicable provisions of Section 285.230-234.
- J. Sections 285.525 and 285.530, RSMo, require business entities to enroll and participate in a federal work authorization program in order to be eligible to receive award of any state contract in excess of \$5,000. Bidders should submit with their bid an Affidavit of Work Authorization (Section 004541) along with appropriate documentation evidencing such enrollment and participation. Section-004541, Affidavit of Work Authorization is located on the MissouriBUYS solicitation for this project. Bidders must also submit an E-Verify Memorandum before the Owner may award a contract to the Bidder. Information regarding an E-Verify is located at <https://www.uscis.gov/e-verify/>. The contractor shall be responsible for ensuring that all subcontractors and suppliers associated with this contract enroll in E-Verify.

10.0 - CONTRACT SECURITY

- A. The successful bidder shall furnish a performance/payment bond as set forth in General Conditions Article 6.1 on a condition prior to the State executing the contract and issuing a notice to proceed.

11.0 - LIST OF SUBCONTRACTORS

- A. If required by "Section 004113 – Bid Form," each bidder must submit as part of their bid a list of subcontractors to be used in performing the work (Section 004336). The list must specify the name of the single designated subcontractor, for each category of work listed in "Section 004336 - Proposed Subcontractors Form." If work within a category will be performed by more than one subcontractor, the bidder must provide the name of each subcontractor and specify the exact portion of the work to be done by each. Failure to list the Bidder's firm, or a subcontractor for each category of work identified on the Bid Form or the listing of more than one subcontractor for any category without designating the portion of work to be performed by each shall be cause for rejection of the bid. If the bidder intends to perform any of the designated subcontract work with the use of his own employees, the bidder shall make that fact clear, by listing his own firm for the subject category. **If any category of work is left vacant, the bid shall be rejected.**

12.0 - WORKING DAYS

- A. Contract duration time is stated in working days and will use the following definition in determining the actual calendar date for contract completion:
 - 1. Working days are defined as all calendar days except Saturdays, Sundays and the following State of Missouri observed holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday, Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day.

13.0 - AMERICAN AND MISSOURI - MADE PRODUCTS AND FIRMS

- A. By signing the bid form and submitting a bid on this project, the Bidder certifies that it will use American and Missouri products as set forth in Article 1.7 of the General Conditions. Bidders are advised to review those requirements carefully prior to bidding.
- B. A preference shall be given to Missouri firms, corporations or individuals, or firms, corporations or individuals that maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less.
- C. Pursuant to Section 34.076, RSMo, a contractor or Bidder domiciled outside the boundaries of the State of Missouri shall be required, in order to be successful, to submit a bid the same percent less than the lowest bid submitted by a responsible contractor or Bidder domiciled in Missouri as would be required for such a Missouri domiciled contractor or Bidder to succeed over the bidding contractor or Bidder domiciled outside Missouri on a like contract or bid being let in the person's domiciliary state and, further, the contractor or Bidder domiciled outside the boundaries of Missouri shall be required to submit an audited financial statement as would be required of a Missouri domiciled contractor or Bidder on a like contract or bid being let in the domiciliary state of that contractor or Bidder.

14.0 – ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION:

- A. Pursuant to section 34.600, RSMo, if the Bidder meets the section 34.600, RSMo, definition of a “company” and the Bidder has ten or more employees, the Bidder must certify in writing that the Bidder is not currently engaged in a boycott of goods or services from the State of Israel as defined in section 34.600, RSMo, and shall not engage in a boycott of goods or services from the State of Israel, if awarded a contract, for the duration of the contract. The Bidder is requested to complete and submit the applicable portion of Section 004545 - Anti-Discrimination Against Israel Act Certification with their Bid Form. The applicable portion of the exhibit must be submitted prior to execution of a contract by the Owner and issuance of Notice to Proceed. If the exhibit is not submitted, the Owner shall rescind its Intent to Award and move to the next lowest, responsive, responsible bidder.

15.0 - MBE/WBE/SDVE INSTRUCTIONS

- A. Definitions:
 - 1. “**MBE**” means a Minority Business Enterprise.
 - 2. “**MINORITY**” has the same meaning as set forth in 1 C.S.R. 10-17.010.
 - 3. “**MINORITY BUSINESS ENTERPRISE**” has the same meaning as set forth in section 37.020, RSMo.
 - 4. “**WBE**” means a Women’s Business Enterprise.
 - 5. “**WOMEN’S BUSINESS ENTERPRISE**” has the same meaning as set forth in section 37.020, RSMo.
 - 6. “**SDVE**” means a Service-Disabled Veterans Enterprise.
 - 7. “**SERVICE-DISABLED VETERAN**” has the same meaning as set forth in section 34.074, RSMo.
 - 8. “**SERVICE-DISABLED VETERAN ENTERPRISE**” has the same meaning as “Service-Disabled Veteran Business” set forth in section 34.074, RSMo.

B. MBE/WBE/SDVE General Requirements:

1. For all bids greater than \$100,000, the Bidder shall obtain MBE, WBE and SDVE participation in an amount equal to or greater than the percentage goals set forth in the Invitation for Bid and the Bid Form, unless the Bidder is granted a Good Faith Effort waiver by the Director of the Division, as set forth below. If the Bidder does not meet the MBE, WBE and SDVE goals, or make a good faith effort to do so, the Bidder shall be non-responsive, and its bid shall be rejected.
2. The Bidder should submit with its bid all of the information requested in the MBE/WBE/SDVE Compliance Evaluation Form for every MBE, WBE, or SDVE subcontractor or material supplier the Bidder intends to use for the contract work. The Bidder is required to submit all appropriate MBE/WBE/SDVE documentation before the stated time and date set forth in the Invitation for Bid. If the Bidder fails to provide such information by the specified date and time, the Owner shall reject the bid.
3. The Director reserves the right to request additional information from a Bidder to clarify the Bidder's proposed MBE, WBE, and/or SDVE participation. The Bidder shall submit the clarifying information requested by the Owner within two (2) Working Days of receiving the request for clarification.
4. Pursuant to section 34.074, RSMo, a Bidder that is a SDVE doing business as Missouri firm, corporation, or individual, or that maintains a Missouri office or place of business, shall receive a three-point bonus preference in the contract award evaluation process. The bonus preference will be calculated and applied by reducing the bid amount of the eligible SDVE by three percent of the apparent low responsive bidder's bid. Based on this calculation, if the eligible SDVE's evaluation is less than the apparent low responsive bidder's bid, the eligible SDVE's bid becomes the apparent low responsive bid. This reduction is for evaluation purposes only, and will have no impact on the actual amount(s) of the bid or the amount(s) of any contract awarded. In order to be eligible for the SDVE preference, the Bidder must complete and submit with its bid the Missouri Service Disabled Veteran Business Form, and any information required by the form. The form is available on the MissouriBUYS solicitation for this project.

C. Computation of MBE/WBE/SDVE Goal Participation:

1. A Bidder who is a MBE, WBE, or SDVE may count 100% of the contract towards the MBE, WBE or SDVE goal, less any amounts awarded to another MBE, WBE or SDVE. (NOTE: A MBE firm that bids as general contractor must obtain WBE and SDVE participation; a WBE firm that bids as a general contractor must obtain MBE and SDVE participation; and a SDVE firm that bids as general contractor must obtain MBE and WBE participation.) In order for the remaining contract amount to be counted towards the MBE, WBE or SDVE goal, the Bidder must complete the MBE/WBE/SDVE Compliance Evaluation Form (Section 004337) identifying itself as an MBE, WBE or SDVE.
2. The total dollar value of the work granted to a certified MBE, WBE or SDVE by the Bidder shall be counted towards the applicable goal.
3. Expenditures for materials and supplies obtained from a certified MBE, WBE, or SDVE supplier or manufacturer may be counted towards the MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE assumes the actual and contractual responsibility for the provision of the materials and supplies.
4. The total dollar value of the work granted to a second or subsequent tier subcontractor or a supplier may be counted towards a Bidder's MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE properly assumes the actual and contractual responsibility for the work.
5. The total dollar value of work granted to a certified joint venture equal to the percentage of the ownership and control of the MBE, WBE, or SDVE partner in the joint venture may be counted towards the MBE/WBE/SDVE goals.
6. Only expenditures to a MBE, WBE, or SDVE that performs a commercially useful function in the work may be counted towards the MBE, WBE and SDVE goals. A MBE, WBE, or SDVE performs a commercially useful function when it is responsible for executing a distinct element of the work and carrying out its responsibilities by actually performing, managing and supervising the work or providing supplies or manufactured materials.

D. Certification of MBE/WBE/SDVE Subcontractors:

1. In order to be counted towards the goals, an MBE or WBE must be certified by the State of Missouri Office of Equal Opportunity and an SDVE must be certified by the State of Missouri, Office of Administration, Division of Purchasing and Material Management or by the Department of Veterans Affairs.
2. The Bidder may determine the certification status of a proposed MBE or WBE subcontractor or supplier by referring to the Office of Equal Opportunity (OEO)'s online MBE/WBE directory (<https://apps1.mo.gov/MWBCertifiedFirms/>). The Bidder may determine the eligibility of a SDVE subcontractor or supplier by referring to the Division of Purchasing and Materials Management's online SDVE directory (<https://oa.mo.gov/sites/default/files/sdvelisting.pdf>) or the Department of Veterans Affairs' directory (<https://vetbiz.va.gov/basic-search/>).
3. Additional information, clarifications, etc., regarding the listings in the directories may be obtained by calling the Division at (573)751-3339 and asking to speak to the Contract Specialist of record as shown in the Supplementary Conditions (Section 007300).

E. Waiver of MBE/WBE/SDVE Participation:

1. If a Bidder has made a good faith effort to secure the required MBE, WBE and/or SDVE participation and has failed, the Bidder shall submit with its bid the information requested in MBE/WBE/SDVE Good Faith Effort (GFE) Determination form. The GFE forms are located on the MissouriBUYS solicitation for this project. The Director will determine if the Bidder made a good faith effort to meet the applicable goals. If the Director determines that the Bidder did not make a good faith effort, the bid shall be rejected as being nonresponsive to the bid requirements. Bidders who demonstrate that they have made a good faith effort to include MBE, WBE, and/or SDVE participation will be determined to be responsive to the applicable participation goals, regardless of the percent of actual participation obtained, if the bid is otherwise acceptable.
2. In determining whether a Bidder has made a good faith effort to obtain MBE, WBE and/or SDVE participation, the Director may evaluate the factors set forth in 1 CSR 30-5.010(6)(C) and the following:
 - a. The amount of actual participation obtained;
 - b. How and when the Bidder contacted potential MBE, WBE, and SDVE subcontractors and suppliers;
 - c. The documentation provided by the Bidder to support its contacts, including whether the Bidder provided the names, addresses, phone numbers, and dates of contact for MBE/WBE/SDVE firms contacted for specific categories of work;
 - d. If project information, including plans and specifications, were provided to MBE/WBE/SDVE subcontractors;
 - e. Whether the Bidder made any attempts to follow-up with MBE, WBE or SDVE firms prior to bid;
 - f. Amount of bids received from any of the subcontractors and/or suppliers that the Bidder contacted;
 - g. The Bidder's stated reasons for rejecting any bids;
3. If no bidder has obtained any participation in a particular category (MBE/WBE/SDVE) or made a good faith effort to do so, the Director may waive that goal rather than rebid.

F. Contractor MBE/WBE/SDVE Obligations

1. If awarded a contract, the Bidder will be contractually required to subcontract with or obtain materials from the MBE, WBE, and SDVE firms listed in its bid, in amounts equal to or greater than the dollar amount bid, unless the amount is modified in writing by the Owner.
2. If the Contractor fails to meet or maintain the participation requirements contained in the Contractor's bid, the Contractor must satisfactorily explain to the Director why it cannot comply with the requirement and why failing meeting the requirement was beyond the Contractor's control. If the Director finds the Contractor's explanation unsatisfactory, the Director may take any appropriate action including, but not limited to:
 - a. Declaring the Contractor ineligible to participate in any contracts with the Division for up to twelve (12) months (suspension); and/or
 - b. Declaring the Contractor be non-responsive to the Invitation for Bid, or in breach of contract and rejecting the bid or terminating the contract.
3. If the Contractor replaces an MBE, WBE, or SDVE during the course of this contract, the Contractor shall replace it with another MBE, WBE, or SDVE or make a good faith effort to do so. All MBE, WBE and SDVE substitutions must be approved by the Director.
4. The Contractor shall provide the Owner with regular reports on its progress in meeting its MBE/WBE/SDVE obligations. At a minimum, the Contractor shall report the dollar-value of work completed by each MBE, WBE, or SDVE during the preceding month and the cumulative total of work completed by each MBE, WBE or SDVE to date with each monthly application for payment. The Contractor shall also make a final report, which shall include the total dollar-value of work completed by each MBE, WBE, and SDVE during the entire contract.

STATE OF MISSOURI
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION
MBE/WBE/SDVE DIRECTORY

The MBE/WBE Directory for goods and services is maintained by the Office of Equal Opportunity (OEO). The current Directory can be accessed at the following web address:

<https://apps1.mo.gov/MWBCertifiedFirms/>

Please note that you may search by MBE, WBE, or both as well as by region, location of the business by city or state, as well as by commodity or service.

The SERVICE DISABLED VETERAN ENTERPRISE (SDVE) Directory (s) may be accessed at the following web addresses:

<https://oa.mo.gov/sites/default/files/sdvelisting.pdf>

<https://vetbiz.va.gov/basic-search/>

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**CERTIFICATION OF
NON-SEGREGATED FACILITIES**

The federally assisted construction contractor certifies that he/she does not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that he/she does not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The federally assisted construction contractor certifies further that he/she will not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that he/she will not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this section is a violation of the Equal Opportunity Clause in this contract. As used in this caption, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national of because of habit, local custom, or otherwise. The federally assisted construction contractor agrees that (except where he/she has obtained identical certifications from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he/she will retain such certifications in his/her files.

NOTE-. The penalty for making false statements in offers is prescribed in 18 U. S. C. 1001.

Contractor Signature _____

Typed Name & Title _____ Date _____

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**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Non-segregated 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. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

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, United States Code, as required in 23 CFR 633.102(b) (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). 23 CFR 633.102(e).

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. 23 CFR 633.102(e).

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) in accordance with 23 CFR 633.102. 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 solicitation-for-bids or request-for-proposals 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). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A 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 Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 230, Subpart A, 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 (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 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 Part 35 and 29 CFR Part 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. 23 CFR 230.409 (g)(4) & (5).

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, sexual orientation, gender identity, 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 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 or other knowledgeable company official.

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, or obligates the contractor to 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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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. 23 CFR 230.409. 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, sexual orientation, gender identity, 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 so 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, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable 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, sexual orientation, gender identity, 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, suppliers, and lessors of their EEO obligations under this contract.

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

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient 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 recipient deems appropriate, which may include, but is not limited to:

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

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 more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, 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, sexual orientation, gender identity, 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), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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 (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and 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 conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) 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, 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 and so advise 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 Administrator for determination. The 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 from 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 (29 CFR 5.5)

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 required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

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-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. 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 payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), 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 payroll 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 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) 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 18 U.S.C. 1001 and 31 U.S.C. 231.

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 (29 CFR 5.5)

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. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen 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 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. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee 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.

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. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. 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 as provided in 29 CFR 5.5.

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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, 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 (29 CFR 5.5)

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).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), 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. 29 CFR 5.5.

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 currently provided in 29 CFR 5.5(b)(2)* 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. 29 CFR 5.5.

* \$27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages.

The FHWA or 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 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. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 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. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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" in paragraph 1 of Section VI 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: (based on longstanding interpretation)

- (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. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), 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. Pursuant to 23 CFR 635.116(c), 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. (based on longstanding interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

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 Part 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. 23 CFR 635.108.

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 Part 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). 29 CFR 1926.10.

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 Part 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 11, 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 (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders

or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

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. 2 CFR 180.220 and 1200.220.

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. 2 CFR 180.320.

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. 2 CFR 180.325.

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. 2 CFR 180.345 and 180.350.

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, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 180.330.

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. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. 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 System for Award Management website (<https://www.sam.gov>). 2 CFR 180.300, 180.320, and 180.325.

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 CFR 180.325.

* * * * *

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 CFR 180.335;.

(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, 2 CFR 180.800;

(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, 2 CFR 180.700 and 180.800; 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. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. 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). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

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, Subpart I, 180.900 – 180.1020, 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 recipient or subrecipient 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 recipient or subrecipient 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).

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. 2 CFR 1200.220 and 1200.332.

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. 2 CFR 180.220 and 1200.220.

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 System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

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:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should 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 Part 20, App. A.

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.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.
2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS** (23 CFR 633, Subpart B, Appendix B)

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.

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U.S. Department of the Interior

Certifications Regarding Debarment, Suspension and Other Responsibility Matters, Drug-Free Workplace Requirements and Lobbying

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - **The prospective primary 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 Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.** See below for language to be used or use this form certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters- Primary Covered Transactions

CHECK ___ IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
 - (b) 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;
 - (c) 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 (1)(b) of this certification; and
 - (d) 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.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

CHECK ___ IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

- (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 participation in this transaction 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.

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK___IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing an ongoing drug-free awareness program to inform employees about--
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --
 - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Check___if there are workplaces on files that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK___IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements

CHECK ___ IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT; SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.

CHECK ___ IF CERTIFICATION FOR THE AWARD OF A FEDERAL LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.

The undersigned certifies, 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 behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and 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.
- (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 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
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

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 Section 1352, title 31, U.S. Code. 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.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

TYPED NAME AND TITLE

DATE

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**BUSINESS ENTITY CERTIFICATION, ENROLLMENT DOCUMENTATION,
AND AFFIDAVIT OF WORK AUTHORIZATION**

BUSINESS ENTITY CERTIFICATION:

The project sponsor must certify their current business status by completing either Box A or Box B or Box C on this Exhibit.

- BOX A:** To be completed by a non-business entity as defined below.
- BOX B:** To be completed by a business entity who has not yet completed and submitted documentation pertaining to the federal work authorization program as described at http://www.dhs.gov/files/programs/gc_1185221678150.shtm.
- BOX C:** To be completed by a business entity who has current work authorization documentation on file with a Missouri state agency including Division of Purchasing and Materials Management.

Business entity, as defined in section 285.525, RSMo, pertaining to section 285.530, RSMo, is any person or group of persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood. The term “**business entity**” shall include but not be limited to self-employed individuals, partnerships, corporations, contractors, and subcontractors. The term “**business entity**” shall include any business entity that possesses a business permit, license, or tax certificate issued by the state, any business entity that is exempt by law from obtaining such a business permit, and any business entity that is operating unlawfully without such a business permit. The term “**business entity**” shall not include a self-employed individual with no employees or entities utilizing the services of direct sellers as defined in subdivision (17) of subsection 12 of section 288.034, RSMo.

Note: Regarding governmental entities, business entity includes Missouri schools, Missouri universities (other than stated in Box C), out of state agencies, out of state schools, out of state universities, and political subdivisions. A business entity does not include Missouri state agencies and federal government entities.

BOX A – CURRENTLY NOT A BUSINESS ENTITY

I certify that _____ (**Company/Individual Name**) **DOES NOT CURRENTLY MEET** the definition of a business entity, as defined in section 285.525, RSMo pertaining to section 285.530, RSMo as stated above, because: (check the applicable business status that applies below)

- I am a self-employed individual with no employees; **OR**
- The company that I represent employs the services of direct sellers as defined in subdivision (17) of subsection 12 of section 288.034, RSMo.

I certify that I am not an alien unlawfully present in the United States and if _____ (**Company/Individual Name**) is awarded a Recreational Trails Program Grant for _____ (**Project Title**) and if the business status changes during the project period to become a business entity as defined in section 285.525, RSMo, pertaining to section 285.530, RSMo, then, prior to proceeding with the project as a business entity, _____ (**Company/Individual Name**) agrees to complete Box B, comply with the requirements stated in Box B and provide the Department of Natural Resources, Division of State Parks with all documentation required in Box B of this exhibit.

Authorized Representative’s Name (Please Print)

Authorized Representative’s Signature

Company Name (if applicable)

Date

(Complete the following if you DO NOT have the E-Verify documentation and a current Affidavit of Work Authorization already on file with the State of Missouri. If completing Box B, do not complete Box C.)

BOX B – CURRENT BUSINESS ENTITY STATUS

I certify that _____ (Business Entity Name) **MEETS** the definition of a business entity as defined in section 285.525, RSMo, pertaining to section 285.530.

Authorized Business Entity Representative's Name (Please Print)

Authorized Business Entity Representative's Signature

Business Entity Name

Date

E-Mail Address

As a business entity, the project sponsor must perform/provide each of the following. The project sponsor should check each to verify completion/submission of all of the following:

- Enroll and participate in the E-Verify federal work authorization program (Website: http://www.dhs.gov/files/programs/gc_1185221678150.shtm; Phone: 888-464-4218; Email: e-verify@dhs.gov) with respect to the employees hired after enrollment in the program who are proposed to work in connection with the services required herein; AND

- Provide documentation affirming said company's/individual's enrollment and participation in the E-Verify federal work authorization program. Documentation shall include EITHER the E-Verify Employment Eligibility Verification page listing the project sponsor's name and company ID OR a page from the E-Verify Memorandum of Understanding (MOU) listing the project sponsor's name and the MOU signature page completed and signed, at minimum, by the project sponsor and the Department of Homeland Security – Verification Division. If the signature page of the MOU lists the project sponsor's name and company ID, then no additional pages of the MOU must be submitted; AND

- Submit a completed, notarized Affidavit of Work Authorization provided on the next page of this Exhibit.

AFFIDAVIT OF WORK AUTHORIZATION:

The project sponsor who meets the section 285.525, RSMo, definition of a business entity must complete and return the following Affidavit of Work Authorization.

Comes now _____ (Name of Business Entity Authorized Representative) as _____ (Position/Title) first being duly sworn on my oath, affirm _____ (Business Entity Name) is enrolled and will continue to participate in the E-Verify federal work authorization program with respect to employees hired after enrollment in the program who are proposed to work in connection with the proposed Recreational Trails Program project with the State of Missouri for the duration of the contract(s), if awarded in accordance with subsection 2 of section 285.530, RSMo. I also affirm that _____ (Business Entity Name) does not and will not knowingly employ a person who is an unauthorized alien in connection with the proposed Recreational Trails Program project for the duration of the project period, if awarded.

In Affirmation thereof, the facts stated above are true and correct. (The undersigned understands that false statements made in this filing are subject to the penalties provided under section 575.040, RSMo.)

_____	_____
Authorized Representative's Signature	Printed Name
_____	_____
Title	Date
_____	_____
E-Mail Address	E-Verify Company ID Number

Subscribed and sworn to before me this _____ of _____. I am
(DAY) (MONTH, YEAR)
commissioned as a notary public within the County of _____, State of
(NAME OF COUNTY)
_____, and my commission expires on _____.
(NAME OF STATE) (DATE)

_____	_____
Signature of Notary	Date

(Complete the following if you have the E-Verify documentation and a current Affidavit of Work Authorization already on file with the State of Missouri. If completing Box C, do not complete Box B.)

BOX C – AFFIDAVIT ON FILE - CURRENT BUSINESS ENTITY STATUS

I certify that _____ (**Business Entity Name**) **MEETS** the definition of a business entity as defined in section 285.525, RSMo, pertaining to section 285.530, RSMo, and have enrolled and currently participates in the E-Verify federal work authorization program with respect to the employees hired after enrollment in the program who are proposed to work in connection with the Recreational Trails Program project with the State of Missouri. We have previously provided documentation to a Missouri state agency or public university that affirms enrollment and participation in the E-Verify federal work authorization program. The documentation that was previously provided included the following.

- ✓ The E-Verify Employment Eligibility Verification page OR a page from the E-Verify Memorandum of Understanding (MOU) listing the project sponsor’s name and the MOU signature page completed and signed by the project sponsor’s and the Department of Homeland Security – Verification Division
- ✓ A current, notarized Affidavit of Work Authorization (must be completed, signed, and notarized within the past twelve months).

Name of **Missouri State Agency** or **Public University*** to Which Previous E-Verify Documentation Submitted:

(*Public University includes the following five schools under chapter 34, RSMo: Harris-Stowe State University – St. Louis; Missouri Southern State University – Joplin; Missouri Western State University – St. Joseph; Northwest Missouri State University – Maryville; Southeast Missouri State University – Cape Girardeau.)

Date of Previous E-Verify Documentation Submission: _____

Previous **Bid/Contract Number** for Which Previous E-Verify Documentation Submitted: _____
(if known)

Authorized Business Entity Representative’s
Name (Please Print)

Authorized Business Entity
Representative’s Signature

E-Verify MOU Company ID Number

E-Mail Address

Business Entity Name

Date

FOR STATE USE ONLY

Documentation Verification Completed By:

Buyer

Date

CERTIFICATE OF MATERIALS ORIGIN

FEDERAL PROJECT NUMBER		STATE PROJET NUMBER	
ITEM DESCRIPTION		BID ITEM NUMBER	
INVOICE NUMBER		QUANTITY	
DATE RECEIVED		BILL OF LADING No.	

MATERIAL SOURCE (NAME AND ADDRESS) TO INCLUDE EACH SUPPLIER, FABRICATOR, AND MANUFACTURER INCLUDING HEAT/BATCH NUMBERS IF AVAILABLE

MATERIAL DESCRIPTION

DESCRIPTION OF MATERIALS OF UNKNOWN ORIGIN OR FOREIGN MATERIALS DELIVERED TO THE PROJECT

This certification is made for the purpose of establishing the materials acceptance under the Buy America Certification (23CFR 635.410) and the Contract Special Provisions. All iron and steel manufacturing processes, including protective coating for the domestic materials described above occurred in the United States of America. Manufacturer's certificates verify the origin above described in the domestic materials and will be kept on file for three years by the suppliers following final payment. Copies will be provided to the Missouri Department of Natural Resources upon request.

I declare under penalty of perjury under the Missouri and Federal Laws that the foregoing is true and correct.

Company Name and Address	Authorized Representative
	<p>Name:</p> <p>Title:</p> <p>Signature:</p> <p>Date:</p>

CERTIFICATE OF MATERIALS ORIGIN (NON-IRON/STEEL)

FEDERAL PROJECT NUMBER		STATE PROJECT NUMBER	
ITEM DESCRIPTION		BID ITEM NUMBER	
INVOICE NUMBER		QUANTITY	
DATE RECEIVED		BILL OF LADING No.	

MATERIAL SOURCE (NAME AND ADDRESS) TO INCLUDE EACH SUPPLIER, FABRICATOR, AND MANUFACTURER INCLUDING HEAT/BATCH NUMBERS IF AVAILABLE

MATERIAL DESCRIPTION

DESCRIPTION OF MATERIALS OF UNKNOWN ORIGIN OR FOREIGN MATERIALS DELIVERED TO THE PROJECT

This certification is made for the purpose of establishing the materials acceptance under the Buy America requirements in the Jobs ACT legislation which includes Build America, Buy America Act Publication L. No. 117-68. This certification is for the additional construction material requirements to be domestically produced in addition to the existing steel and iron Buy America requirements. The construction material origin and any manufacturing processes for this product shall all be performed domestically in the United States of America. Manufacturer's certificates shall verify the origin above described in the domestic materials and will be kept on file for three years by the suppliers following final payment. Copies will be provided to the Missouri Department of Natural Resources upon request.

I declare to the best of my knowledge under penalty of perjury under the Missouri and Federal Laws that the foregoing is true and correct.

Company Name and Address	Authorized Representative
	Name: Title: Signature: Date:



State of Missouri Construction Contract

THIS AGREEMENT is made (DATE) by and between:

Contractor Name and Address

hereinafter called the "Contractor,"

and the **State of Missouri**, hereinafter called the "**Owner**", represented by the Office of Administration, Division of Facilities Management, Design and Construction, on behalf of the Department of Natural Resources, State Parks.

WITNESSETH, that the Contractor and the Owner, for the consideration stated herein agree as follows:

ARTICLE 1. STATEMENT OF WORK

The Contractor shall furnish all labor and materials and perform all work required for furnishing and installing all labor, materials, equipment and transportation and everything necessarily inferred from the general nature and tendency of the plans and specifications for the proper execution of the work for:

Project Name: Paved Trail Repair
Weston Bend State Park
Weston, Missouri

Project Number: X2117-01

in strict accordance with the Contract Documents as enumerated in Article 7, all of which are made a part hereof.

ARTICLE 2. TIME OF COMPLETION

The contract performance time is **120 working days** from the transmittal date of this agreement. The contract completion date is **MONTH, DAY, YEAR**. This time includes ten (10) working days for the Contractor to receive, sign and return the contract form along with required bonding and insurance certificates. Failure of the Contractor to provide correct bonding and insurance within the ten (10) working days shall not be grounds for a time extension. Receipt of proper bonding and insurance is a condition precedent to the formation of the contract and if not timely received, may result in forfeiture of the Contractor's bid security. Work may not commence until the Owner issues a written Notice to Proceed and must commence within seven (7) working days thereafter.

ARTICLE 3. LIQUIDATED DAMAGES

Whenever time is mentioned in this contract, time shall be and is of the essence of this contract. The Owner would suffer a loss should the Contractor fail to have the work embraced in this contract fully completed on or before the time above specified. THEREFORE, the parties hereto realize in order to adjust satisfactorily the damages on account of such failure that it might be impossible to compute accurately or estimate the amount of such loss or damages which the Owner would sustain by reason of failure to complete fully said work within the time required by this contract. The Contractor hereby covenants and agrees to pay the Owner, as and for **liquidated damages, the sum of \$500** per day for each and every day, Sunday and legal holidays excepted, during which the work remains incomplete and unfinished. Any sum which may be due the Owner for such damages shall be deducted and retained by the Owner from any balance which may be due the Contractor when said work shall have been finished and accepted. But such provisions shall not release the Bond of the Contractor from liability according to its terms. In case of failure to complete, the Owner will be under no obligation to show or prove any actual or specific loss or damage.

ARTICLE 4. CONTRACT SUM

The Owner shall pay the Contractor for the prompt, faithful and efficient performance of the conditions and undertakings of this contract, subject to additions, and deductions as provided herein, in current funds the sum of:

Base Bid: \$
TOTAL CONTRACT AMOUNT: (\$CONTRACT AMOUNT)

UNIT PRICES: The Owner accepts the following Unit Prices:

For changing specified quantities of work from those indicated by the contract drawings and specifications, upon written instructions of Owner, the following unit prices shall prevail. The unit prices include all labor, overhead and profit, materials, equipment, appliances, bailing, shoring, shoring removal, etc., to cover the finished work of the several kinds of work called for. Only a single unit price shall be given and it shall apply for either MORE or LESS work than that shown on the drawings and called for in the specifications or included in the Base Bid. In the event of more or less units than so indicated or included, change orders may be issued for the increased or decreased amount.

ARTICLE 5. PREVAILING WAGE RATE

MISSOURI PREVAILING WAGE LAW (Sections 290.210 to 290.340, RSMo): The Contractor shall pay not less than the specified hourly rate of wages, as set out in the wage order attached to and made part of the specifications for work under this contract, to all workers performing work under the contract, in accordance with sections 290.210 to 290.340, RSMo. The Contractor shall forfeit a penalty to the Owner of one hundred dollars per day (or portion of a day) for each worker that is paid less than the specified rates for any work done under the contract by the Contractor or by any subcontractor, in accordance with section 290.250, RSMo.

DAVIS-BACON ACT: The Contractor is NOT required to comply with the prevailing wage requirements of the Davis-Bacon Act for this project. This project is funded through the Recreational Trails Program overseen by the U.S. Department of Transportation, Federal Highway Administration (FHWA). The provisions of the Davis-Bacon Act, 40 U.S.C. §3141 et seq., are applicable to FHWA projects that are within the right-of-way of a Federal-aid highway pursuant to 23 USC § 113. However, this project has been determined by FHWA not to be within the right-of-way of a Federal-aid highway as defined in 23 USC § 101(a)(6).

ARTICLE 6. MINORITY/WOMEN/SERVICE DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION

The Contractor has been granted a waiver of the 10% MBE and 10% WBE and 3% SDVE participation goals. The Contractor agrees to secure the MBE/WBE/SDVE participation amounts for this project as follows: (OR)

The Contractor has met the MBE/WBE/SDVE participation goals and agrees to secure the MBE/WBE/SDVE participation amounts for this project as follows:

MBE/WBE/SDVE Firm: Subcontract Amt:\$
MBE/WBE/SDVE Firm: Subcontract Amt:\$
MBE/WBE/SDVE Firm: Subcontract Amt:\$
Total \$

MBE/WBE/SDVE assignments identified above shall not be changed without a contract change signed by the Owner.

The Director of the Division of Facilities Management, Design and Construction or his Designee shall be the final authority to resolve disputes and disagreements between the Contractor and the MBE/WBE/SDVE firms listed above when such disputes impact the subcontract amounts shown above.

ARTICLE 7. CONTRACT DOCUMENTS

The following documents are hereby incorporated into this contract by reference (all division/section numbers and titles are as utilized in the Project Manual published by the Owner for this Project):

1. Division 0 – Procurement and Contracting Information, including, but not limited to:
 - a. Invitation for Bid (Section 001116)
 - b. Instructions to Bidders (Section 002113)
 - c. Supplementary Instructions to Bidders (if applicable) (Section 002213)
 - d. The following documents as completed and executed by the Contractor and accepted by the Owner, if applicable:
 - i. Bid Form (Section 004113)
 - ii. Unit Prices (Section 004322)
 - iii. Proposed Contractors Form (Section 004336)
 - iv. MBE, WBE, SDVE Compliance Evaluation Form(s) (Section 004337)
 - v. MBE, WBE, SDVE Eligibility Determination Form for Joint Ventures (Section 004338)
 - vi. MBE, WBE, SDVE Good Faith Effort (GFE) Determination Form (Section 004339)
 - vii. Missouri Service Disabled Veteran Business Form (Section 004340)
 - viii. Affidavit of Work Authorization (Section 004541)
 - ix. Affidavit for Affirmative Action (Section 005414)
 - e. Performance and Payment Bond, completed and executed by the Contractor and surety (Section 006113)
 - f. General Conditions (Section 007213)
 - g. Supplementary Conditions (Section 007300)
 - h. Supplementary General Conditions for Federally Funded/Assisted Construction Projects (Section 007333)
 - i. Wage Rate(s) (Section 007346)
2. Division 1 – General Requirements
3. All Drawings identified in the Project Manual
4. All Technical Specifications included in the Project Manual
5. Addenda, if applicable

ARTICLE 8 – CERTIFICATION

By signing this contract, the Contractor hereby re-certifies compliance with all legal requirements set forth in Section 6.0, Bidder’s Certifications of the Bid Form.

Further, if the Contractor provides any “personal information” as defined in §105.1500, RSMo concerning an entity exempt from federal income tax under Section 501(c) of the Internal Revenue Code of 1986, as amended, the Contractor understands and agrees that it is voluntarily choosing to enter into a state contract and providing such information for that purpose. The state will treat such personal information in accord with §105.1500, RSMo.

By signature below, the parties hereby execute this contract document.

APPROVED:

Brian Yansen, Director
Division of Facilities Management,
Design and Construction

Contractor's Authorized Signature

I, Corporate Secretary, certify that I am Secretary of the corporation named above and that (CONTRACTOR NAME), who signed said contract on behalf of the corporation, was then (TITLE) of said corporation and that said contract was duly signed for and in behalf of the corporation by authority of its governing body, and is within the scope of its corporate powers.

Corporate Secretary



STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
AFFIDAVIT FOR AFFIRMATIVE ACTION

PROJECT NUMBER

NAME

First being duly sworn on oath states: that

he/she is the sole proprietor partner officer or manager or managing member of

NAME

a sole proprietorship partnership
 limited liability company (LLC)

or corporation, and as such, said proprietor, partner, or officer is duly authorized to make this

affidavit on behalf of said sole proprietorship, partnership, or corporation; that under the contract known as

PROJECT TITLE

Less than 50 persons in the aggregate will be employed and therefore, the applicable Affirmative Action requirements as set forth in Article 1.4 of the General Conditions of the State of Missouri have been met.

PRINT NAME & SIGNATURE

DATE

--

NOTARY INFORMATION

NOTARY PUBLIC EMBOSSER SEAL	STATE OF	COUNTY (OR CITY OF ST. LOUIS)	USE RUBBER STAMP IN CLEAR AREA BELOW
	SUBSCRIBED AND SWORN BEFORE ME, THIS		
	DAY OF	YEAR	
	NOTARY PUBLIC SIGNATURE	MY COMMISSION EXPIRES	
NOTARY PUBLIC NAME (TYPED OR PRINTED)			

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SECTION 006113 - PERFORMANCE AND PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS, THAT we _____
as principal, and _____
_____ as Surety, are held and firmly bound unto the
STATE OF MISSOURI. in the sum of _____ Dollars (\$ _____)
for payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators and successors, jointly
and severally, firmly by these presents.

WHEREAS, the Principal has, by means of a written agreement dated the _____
day of _____, 20_____, enter into a contract with the State of Missouri for

(Insert Project Title and Number)

NOW, THEREFORE, if the Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the State of Missouri, with or without notice to the Surety and during the life of any guaranty required under the contract; and shall also faithfully perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made with or without notice to the Surety; and shall also promptly make payment for materials incorporated, consumed or used in connection with the work set forth in the contract referred to above, and all insurance premiums, both compensation and all other kinds of insurance, on said work, and for all labor performed on such work, whether by subcontractor or otherwise, at not less than the prevailing hourly rate of wages for work of a similar character (exclusive of maintenance work) in the locality in which the work is performed and not less than the prevailing hourly rate of wages for legal holiday and overtime work (exclusive of maintenance work) in the locality in which the work is performed both as determined by the Department of Labor and Industrial Relations or determined by the Court of Appeal, as provided for in said contract and in any and all duly authorized modifications of said contract that may be hereafter made, with or without notice to the Surety, then, this obligation shall be void and of no effect, but it is expressly understood that if the Principal should make default in or should fail to strictly, faithfully and efficiently do, perform and comply with any or more of the covenants, agreements, stipulations, conditions, requirements or undertakings, as specified in or by the terms of said contract, and with the time therein named, then this obligation shall be valid and binding upon each of the parties hereto and this bond shall remain in full force and effect; and the same may be sued on at the instance of any material man, laborer, mechanic, subcontractor, individual, or otherwise to whom such payment is due, in the name of the State of Missouri, to the use of any such person.

AND, IT IS FURTHER specifically provided that any modifications which may hereinafter be made in the terms of the contract or in the work to be done under it or the giving by the Owner of any extension of the time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and the Surety, or either or any of them, their heirs, executors, administrators and successors, from their liability hereunder, notice to the Surety of any such extension, modifications or forbearance being hereby waived.

IN WITNESS WHEREOF, the above bounden parties have executed the within instrument this _____ day of _____, 20 ____.

AS APPLICABLE:

AN INDIVIDUAL

Name: _____
Signature: _____

A PARTNERSHIP

Name of Partner: _____
Signature of Partner: _____

Name of Partner: _____
Signature of Partner: _____

CORPORATION

Firm Name: _____
Signature of President: _____

SURETY

Surety Name: _____
Attorney-in-Fact: _____
Address of Attorney-in-Fact: _____

Telephone Number of Attorney-in-Fact: _____
Signature Attorney-in-Fact: _____

NOTE: Surety shall attach Power of Attorney



STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
PRODUCT SUBSTITUTION REQUEST

PROJECT NUMBER

PROJECT TITLE AND LOCATION

CHECK APPROPRIATE BOX

SUBSTITUTION PRIOR TO BID OPENING
 (Minimum of (5) working days prior to receipt of Bids as per Article 4 – Instructions to Bidders)

SUBSTITUTION FOLLOWING AWARD
 (Maximum of (20) working days from Notice to Proceed as per Article 3 – General Conditions)

FROM: BIDDER/CONTRACTOR (PRINT COMPANY NAME)

TO: ARCHITECT/ENGINEER (PRINT COMPANY NAME)

Bidder/Contractor hereby requests acceptance of the following product or systems as a substitution in accordance with provisions of Division One of the Bidding Documents:

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

Product data for proposed substitution is attached (include description of product, standards, performance, and test data)

Sample Sample will be sent, if requested

QUALITY COMPARISON

	SPECIFIED PRODUCT	SUBSTITUTION REQUEST
NAME, BRAND		
CATALOG NO.		
MANUFACTURER		
VENDOR		

PREVIOUS INSTALLATIONS

PROJECT	ARCHITECT/ENGINEER	DATE INSTALLED
LOCATION		

SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT

REASON FOR SUBSTITUTION

DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?

YES NO

IF YES, EXPLAIN

SUBSTITUTION REQUIRES DIMENSIONAL REVISION OR REDESIGN OF STRUCTURE OR A/E WORK

YES NO

BIDDER'S/CONTRACTOR'S STATEMENT OF CONFORMANCE OF PROPOSED SUBSTITUTION TO CONTRACT REQUIREMENT:

We have investigated the proposed substitution. We believe that it is equal or superior in all respects to specified product, except as stated above; that it will provide the same Warranty as specified product; that we have included complete implications of the substitution; that we will pay redesign and other costs caused by the substitution which subsequently become apparent; and that we will pay costs to modify other parts of the Work as may be needed, to make all parts of the Work complete and functioning as a result of the substitution.

BIDDER/CONTRACTOR

DATE

REVIEW AND ACTION

Resubmit Substitution Request with the following additional information:

Substitution is accepted.

Substitution is accepted with the following comments:

Substitution is not accepted.

ARCHITECT/ENGINEER

DATE



PROJECT NUMBER

KNOW ALL MEN BY THESE PRESENT THAT: hereinafter called "Subcontractor" who heretofore entered into an agreement with hereinafter called "Contractor", for the performance of work and/or furnishing of material for the construction of the project entitled

(PROJECT TITLE, PROJECT LOCATION, AND PROJECT NUMBER)
 at

(ADDRESS OF PROJECT)

for the State of Missouri (Owner) which said subcontract is by this reference incorporated herein, in consideration of such final payment by Contractor.

DOES HEREBY:

1. ACKNOWLEDGE that they have been **PAID IN FULL** all sums due for work and materials contracted or done by their Subcontractors, Material Vendors, Equipment and Fixture Suppliers, Agents and Employees, or otherwise in the performance of the Work called for by the aforesaid Contract and all modifications or extras or additions thereto, for the construction of said project or otherwise.
2. RELEASE and fully, finally, and forever discharge the Owner from any and all suits, actions, claims, and demands for payment for work performed or materials supplied by Subcontractor in accordance with the requirements of the above referenced Contract.
1. REPRESENT that all of their Employees, Subcontractors, Material Vendors, Equipment and Fixture Suppliers, and everyone else has been **paid in full** all sums due them, or any of them, in connection with performance of said Work, or anything done or omitted by them, or any of them in connection with the construction of said improvements, or otherwise.

DATED this day of , 20 .

NAME OF SUBCONTRACTOR

BY (TYPED OR PRINTED NAME)

SIGNATURE

TITLE

ORIGINAL: FILE/Closeout Documents

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STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT,
 DESIGN AND CONSTRUCTION

MBE/WBE/SDVE PROGRESS REPORT

Remit with **ALL** Progress and Final Payments

(Please check appropriate box) CONSULTANT CONSTRUCTION

PAY APP NO.	PROJECT NUMBER
CHECK IF FINAL <input checked="" type="checkbox"/> FINAL	DATE

PROJECT TITLE

PROJECT LOCATION

FIRM

ORIGINAL CONTRACT SUM (Same as Line Item 1. on Form A of Application for Payment)
\$

TOTAL CONTRACT SUM TO DATE (Same as Line Item 3. on Form A of Application for Payment)
\$

THE TOTAL MBE/WBE/SDVE PARTICIPATION DOLLAR AMOUNT OF THIS PROJECT AS INDICATED IN THE ORIGINAL CONTRACT: \$

SELECT MBE, WBE, SDVE	TOTAL AMOUNT OF SUBCONTRACT	\$ AMOUNT PAID-TO-DATE (include approved contract changes)	CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER COMPANY NAME
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	

INSTRUCTIONS FOR MBE/WBE/SDVE PROGRESS REPORT

CONTRACTOR OR CONSULTANT TO FILL OUT AND REMIT WITH EACH PAY APPLICATION:

The MBE/WBE/SDVE Progress Report for the project is issued with the contract comprising values reported in the consultant's Proposal or on the successful contractor's Section 004337 Compliance Evaluation Forms.

At Initial Pay Application fill in the following:

1. Pay App No. Start with 1.
2. Fill in the Project Number and Date.
3. Enter Project Title, Project Location, and Firm.
4. Fill in the "Original Contract Sum" and "Total Contract Sum To Date" (Reference applicable Line Items on Form A of Application for Payment).
5. Indicate the Total Participation Dollar Amount from the Original Contract.
6. Select MBE, WBE, or SDVE for each Consultant/Subconsultant or Contractor/Subcontractor/Supplier.
7. Enter the "Total Amount of Subcontract", "\$ Amount (Paid-To-Date)", and Company Name.

For all subsequent Pay Applications fill in the following:

1. Pay App No.
2. If Final Pay App, check box.
3. Fill in the Project Number and Date.
4. Enter Project Title, Project Location, and Firm
5. At each Pay App fill in the "Original Contract Sum" and "Total Contract Sum To Date" (reference applicable Line Items on Form A of Application for Payment).
6. Indicate the Total Participation Dollar Amount from the Original Contract.
7. Select MBE, WBE, or SDVE for each Consultant/Subconsultant or Contractor/Subcontractor/Supplier
8. Enter the "Total Amount of Subcontract", "\$ Amount (Paid-To-Date)", and Company Name.



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS

AFFIDAVIT

COMPLIANCE WITH THE PREVAILING WAGE LAW

I, _____, upon being duly sworn upon my oath state that: (1) I am the
(Name)

_____ of _____; (2) all requirements of
(Title) *(Name of Company)*

§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects
have been fully satisfied with regard to this company's work on _____;
(Name of Project)

(3) I have reviewed and am familiar with the prevailing wage rules in 8 CSR 30-3.010 to 8 CSR 30-3.060; (4) based upon my knowledge of these rules, including the occupational titles set out in 8 CSR 30-3.060, I have completed full and accurate records clearly indicating (a) the names, occupations, and crafts of every worker employed by this company in connection with this project together with an accurate record of the number of hours worked by each worker and the actual wages paid for each class or type of work performed, (b) the payroll deductions that have been made for each worker, and (c) the amounts paid to provide fringe benefits, if any, for each worker; (5) the amounts paid to provide fringe benefits, if any, were irrevocably made to a fund, plan, or program on behalf of the workers; (6) these payroll records are kept and have been provided for inspection to the authorized representative of the contracting public body and will be available, as often as may be necessary, to such body and the Missouri Department of Labor and Industrial Relations; (7) such records shall not be destroyed or removed from the state for one year following the completion of this company's work on this project; and (8) there has been no exception to the full and complete compliance with the provisions and requirements of Annual Wage Order No. _____ Section _____ issued by the Missouri Division of Labor Standards and applicable to this project located in _____ County, Missouri, and completed on the _____ day of _____, _____.

The matters stated herein are true to the best of my information, knowledge, and belief. I acknowledge that the falsification of any information set out above may subject me to criminal prosecution pursuant to §§290.340, 570.090, 575.040, 575.050, or 575.060, RSMo.

Signature

Subscribed and sworn to me this _____ day of _____, _____.

My commission expires _____, _____.

Notary Public

Receipt by Authorized Public Representative

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GENERAL CONDITIONS

INDEX

ARTICLE:

- 1. General Provisions**
 - 1.1. Definitions
 - 1.2. Drawings and Specifications
 - 1.3. Compliance with Laws, Permits, Regulations and Inspections
 - 1.4. Nondiscrimination in Employment
 - 1.5. Anti-Kickback
 - 1.6. Patents and Royalties
 - 1.7. Preference for American and Missouri Products and Services
 - 1.8. Communications
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 - 1.10. Assignment of Contract
 - 1.11. Indemnification
 - 1.12. Disputes and Disagreements
- 2. Owner/Designer Responsibilities**
- 3. Contractor Responsibilities**
 - 3.1. Acceptable Substitutions
 - 3.2. Submittals
 - 3.3. As-Built Drawings
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 - 3.6. Other Contractor Responsibilities
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- 4. Changes in the Work**
 - 4.1. Changes in the Work
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- 5. Construction and Completion**
 - 5.1. Construction Commencement
 - 5.2. Project Construction
 - 5.3. Project Completion
 - 5.4. Payments
- 6. Bond and Insurance**
 - 6.1. Bond
 - 6.2. Insurance
- 7. Termination or Suspension of Contract**
 - 7.1. For Site Conditions
 - 7.2. For Cause
 - 7.3. For Convenience

SECTION 007213 - GENERAL CONDITIONS

- A. These General Conditions apply to each section of these specifications. The Contractor is subject to the provisions contained herein.
- B. The General Conditions are intended to define the relationship of the Owner, the Designer and the Contractor thereby establishing certain rules and provisions governing the operation and performance of the work so that the work may be performed in a safe, orderly, expeditious and workmanlike manner.

ARTICLE 1 – GENERAL PROVISIONS

ARTICLE 1.1 - DEFINITIONS

As used in these contract documents, the following terms shall have the meanings and refer to the parties designated in these definitions.

- 1. **"COMMISSIONER"**: The Commissioner of the Office of Administration.
- 2. **"CONSTRUCTION DOCUMENTS"**: The "Construction Documents" shall consist of the Project Manual, Drawings and Addenda.
- 3. **"CONSTRUCTION REPRESENTATIVE:"** Whenever the term "Construction Representative" is used, it shall mean the Owner's Representative at the work site.
- 4. **"CONTRACTOR"**: Party or parties who have entered into a contract with the Owner to furnish work under these specifications and drawings.
- 5. **"DESIGNER"**: When the term "Designer" is used herein, it shall refer to the Architect, Engineer, or Consultant of Record specified and defined in Paragraph 2.0 of the Supplemental Conditions, or his duly authorized representative. The Designer may be either a consultant or state employee.
- 6. **"DIRECTOR"**: Whenever the term "Director" is used, it shall mean the Director of the Division of Facilities Management, Design and Construction or his Designee, representing the Office of Administration, State of Missouri. The Director is the agent of the Owner.
- 7. **"DIVISION"**: Shall mean the Division of Facilities Management, Design and Construction, State of Missouri.

- 8. **"INCIDENTAL JOB BURDENS"**: Shall mean those expenses relating to the cost of work, incurred either in the home office or on the job-site, which are necessary in the course of doing business but are incidental to the job. Such costs include office supplies and equipment, postage, courier services, telephone expenses including long distance, water and ice and other similar expenses.
- 9. **"JOINT VENTURE"**: An association of two (2) or more businesses to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge.
- 10. **"OWNER"**: Whenever the term "Owner" is used, it shall mean the State of Missouri.
- 11. **"PROJECT"**: Wherever the term "Project" is used, it shall mean the work required to be completed by the construction contract.
- 12. **"PROJECT MANUAL"**: The "Project Manual" shall consist of Introductory Information, Invitation for Bid, Instructions to Bidders, Bid Documents, Additional Information, Standard Forms, General Conditions, Supplemental General Conditions, General Requirements and Technical Specifications.
- 13. **"SUBCONTRACTOR"**: Party or parties who contract under, or for the performance of part or this entire Contract between the Owner and Contractor. The subcontract may or may not be direct with the Contractor.
- 14. **"WORK"**: Labor, material, supplies, plant and equipment required to perform and complete the service agreed to by the Contractor in a safe, expeditious, orderly and workmanlike manner so that the project shall be complete and finished in the best manner known to each respective trade.
- 15. **"WORKING DAYS"**: are all calendar days except Saturdays, Sundays and the following holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday (observed), Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day (observed), Thanksgiving Day, Christmas Day.

ARTICLE 1.2 DRAWINGS AND SPECIFICATIONS

- A. In case of discrepancy between drawings and specifications, specifications shall govern. Should discrepancies in architectural drawings, structural drawings and mechanical drawings occur,

architectural drawings shall govern and, in case of conflict between structural and mechanical drawings, structural drawings shall govern.

- B. Specifications are separated into titled divisions for convenience of reference only and to facilitate letting of contracts and subcontracts. The Contractor is responsible for establishing the scope of work for subcontractors, which may cross titled divisions. Neither the Owner nor Designer will establish limits and jurisdiction of subcontracts.
- C. Figured dimensions take precedence over scaled measurements and details over smaller scale general drawings. In the event of conflict between any of the documents contained within the contract, the documents shall take precedence and be controlling in the following sequence: addenda, supplementary general conditions, general conditions, division 1 specifications, technical division specifications, drawings, bid form and instructions to bidders.
- D. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any incidental work which is obviously necessary to complete the project within the limits established by the drawings and specifications, although not shown on or described therein, shall be performed by the Contractor at no additional cost as a part of his contract.
- E. Upon encountering conditions differing materially from those indicated in the contract documents, the Contractor shall promptly notify the Designer and Construction Representative in writing before such conditions are disturbed. The Designer shall promptly investigate said conditions and report to the Owner, with a recommended course of action. If conditions do materially differ and cause an increase or decrease in contract cost or time required for completion of any portion of the work, a contract change will be initiated as outlined in Article 4 of these General Conditions.
- E. Only work included in the contract documents is authorized, and the Contractor shall do no work other than that described therein or in accordance with appropriately authorized and approved contract changes.

ARTICLE 1.3 - COMPLIANCE WITH LAWS, PERMITS, REGULATIONS AND INSPECTIONS

- A. Since the Owner is the State of Missouri, municipal or political subdivisions, zoning ordinances, construction codes (other than licensing of trades), and other like ordinances are not applicable to construction on Owner's property, and Contractor will not be required to submit drawings and specifications to any municipal or political subdivision, authority, obtain

construction permits or any other licenses (other than licensing of trades) or permits from or submit to inspections by any municipality or political subdivision relating to the construction for this project. All permits or licenses required by municipality or political subdivision for operation on property not belonging to Owner shall be obtained by and paid for by Contractor. Each Contractor shall comply with all applicable laws, ordinances, rules and regulations that pertain to the work of this contract.

- B. Contractors, subcontractors and their employees engaged in the businesses of electrical, mechanical, plumbing, carpentry, sprinkler system work, and other construction related trades shall be licensed to perform such work by the municipal or political subdivision where the project is located, if such licensure is required by local code. Local codes shall dictate the level (master, journeyman, and apprentice) and the number, type and ratio of licensed tradesmen required for this project within the jurisdiction of such municipal or political subdivision.
- C. Equipment and controls manufacturers and their authorized service and installation technicians that do not maintain an office within the jurisdiction of the municipal or political subdivision but are a listed or specified contractor or subcontractor on this project are exempt from Paragraph 1.3 B above.
- D. The Contractor shall post a copy of the wage determination issued for the project and included as a part of the contract documents, in a prominent and easily accessible location at the site of construction for the duration of the project.
- E. Any contractor or subcontractor to such contractor at any tier signing a contract to work on this project shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. The contractor shall forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars plus one hundred dollars for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training.

ARTICLE 1.4 - NONDISCRIMINATION IN EMPLOYMENT

- A. The Contractor and his subcontractors will not discriminate against individuals based on race,

color, religion, national origin, sex, disability, or age, but may use restrictions which relate to bona fide occupational qualifications. Specifically, the Contractor and his subcontractors shall not discriminate:

1. Against recipients of service on the basis of race, color, religion, national origin, sex, disability or age.
2. Against any employee or applicant, for employment on the basis of race, color, religion, national origin, sex or otherwise qualified disability status.
3. Against any applicant for employment or employee on the basis of age, where such applicant or employee is between ages 40 and 70 and where such Contractor employs at least 20 persons.
4. Against any applicant for employment or employee on the basis of that person's status as a disabled or Vietnam-era veteran.

The Contractor and his Subcontractors will take affirmative action to insure applicants for employment and employees are treated equally without regard to race, color, religion, national origin, sex, disability, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion and transfer; recruitment or recruitment advertising; and selection for training, including apprenticeship. The Contractor and his Subcontractors will give written notice of their commitments under this clause to any labor union with which they have bargaining or other agreements.

- B. The Contractor and his subcontractors shall develop, implement, maintain and submit in writing to the Owner an affirmative action program if at least fifty (50) persons in the aggregate are employed under this contract. If less than fifty (50) persons in the aggregate are to be employed under this contract, the Contractor shall submit, in lieu of the written affirmative action program, a properly executed Affidavit for Affirmative Action in the form included in the contract specifications. For the purpose of this section, an "affirmative action program" means positive action to influence all employment practices (including, but not limited to, recruiting, hiring, promoting and training) in providing equal employment opportunity regardless of race, color, sex, national origin, religion, age (where the person affected is between age 40 and 70), disabled and Vietnam-era veteran status, and disability. Such "affirmative action program" shall include:

1. A written policy statement committing the total organization to affirmative action and

assigning management responsibilities and procedures for evaluation and dissemination;

2. The identification of a person designated to handle affirmative action;
3. The establishment of non-discriminatory selection standards, objective measures to analyze recruitment, an upward mobility system, a wage and salary structure, and standards applicable to lay-off, recall, discharge, demotion and discipline;
4. The exclusion of discrimination from all collective bargaining agreements; and
5. Performance of an internal audit of the reporting system to monitor execution and to provide for future planning.

In the enforcement of this non-discrimination clause, the Owner may use any reasonable procedures available, including, but not limited to: requests, reports, site visits and inspection of relevant documents of contractors and subcontractors.

- C. In the event of the Contractor's or his subcontractor's noncompliance with any provisions of this Article of the Contract, the Owner may cancel this contract in whole or in part or require the Contractor to terminate his contract with the subcontractor.

ARTICLE 1.5 - ANTI-KICKBACK

No employee of the division, shall have or acquire any pecuniary interest, whether direct or indirect, in this contract or in any part hereof. No officer, employee, designer, attorney, or administrator of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall have or acquire any pecuniary interest, whether direct or indirect, in this contract, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

ARTICLE 1.6 - PATENTS AND ROYALTIES

- A. The Contractor shall hold and save the Owner and its officers, agents, servants and employees harmless from liabilities of any nature or kind, including cost and expenses, for, or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of this contract, including its use by the Owner, unless otherwise specifically stipulated in the contract documents.
- B. If the Contractor uses any design, device or materials covered by letters, patent or copyright,

the Contractor shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, without exception, that the contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

ARTICLE 1.7 - PREFERENCE FOR AMERICAN AND MISSOURI PRODUCTS AND SERVICES

- A. By virtue of statutory authority a preference will be given to Missouri labor and to products of mines, forests and quarries of the state of Missouri when they are found in marketable quantities in the state, and all such materials shall be of the best quality and suitable character that can be obtained at reasonable market prices, all as provided for in Section 8.280, Missouri Revised Statutes and Cumulative Supplements.
- B. Furthermore, pursuant to Section 34.076 Missouri Revised Statutes and Cumulative Supplements, a preference shall be given to those persons doing business as Missouri firms, corporations, or individuals, or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less. In addition, in order for a non-domiciliary bidder to be successful, his bid must be that same percentage lower than a domiciliary Missouri bidder's bid, as would be required for a Missouri bidder to successfully bid in the non-domiciliary state.
- C. In accordance with the Missouri Domestic Products Procurement Act Section 34.350 RSMo and Cumulative Supplements any manufactured goods or commodities used or supplied in the performance of this contract or any subcontract thereto shall be manufactured, assembled or produced in the United States, unless the specified products are not manufactured, assembled or produced in the United States in sufficient quantities to meet the agency's requirements or cannot be manufactured, assembled or produced in the United States within the necessary time in sufficient quantities to meet the contract requirements, or if obtaining the specified products manufactured, assembled or produced in the

United States would increase the cost of this contract for purchase of the product by more than ten percent.

ARTICLE 1.8 - COMMUNICATIONS

- A. All notices, requests, instructions, approvals and claims must be in writing and shall be delivered to the Designer and copied to the Construction Representative for the project except as required by Article 1.12 Disputes and Disagreements, or as otherwise specified by the Owner in writing as stated in Section 012600. Any such notice shall be deemed to have been given as of the time of actual receipt.
- B. The Contractor shall attend on-site progress and coordination meetings, as scheduled by the Construction Representative, no less than once a month.
- C. The Contractor shall ensure that major subcontractors and suppliers shall attend monthly progress meetings as necessary to coordinate the work, and as specifically requested by the Construction Representative.

ARTICLE 1.9 - SEPARATE CONTRACTS AND COOPERATION

- A. The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.
- B. The Contractor shall consult the drawings for all other contractors in connection with this work. Any work conflicting with the above shall be brought to the attention of the Owner's Representative before the work is performed. If the Contractor fails to do this, and constructs any work which interferes with the work of another contractor, the Contractor shall remove any part so conflicting and rebuild same, as directed by the Owner's Representative at no additional cost to the Owner.
- C. Each contractor shall be required to coordinate his work with other contractors so as to afford others reasonable opportunity for execution of their work. No contractor shall delay any other contractor by neglecting to perform contract work at the proper time. If any contractor causes delay to another, they shall be liable directly to that contractor for such delay in addition to any liquidated damages which might be due the Owner.
- D. Should the Contractor or project associated subcontractors refuse to cooperate with the instructions and reasonable requests of other Contractors or other subcontractors in the overall

coordinating of the work, the Owner may take such appropriate action and issue directions, as required, to avoid unnecessary and unwarranted delays.

- E. Each Contractor shall be responsible for damage done to Owner's or other Contractor's property by him/her or workers in his employ through their fault or negligence.
- F. Should a Contractor sustain any damage through any act or omission of any other Contractor having a contract with the Owner, the Contractor so damaged shall have no claim or cause of action against the Owner for such damage, but shall have a claim or cause of action against the other Contractor to recover any and all damages sustained by reason of the acts or omissions of such Contractor. The phrase "acts or omissions" as used in this section shall be defined to include, but not be limited to, any unreasonable delay on the part of any such contractors.

ARTICLE 1.10 - ASSIGNMENT OF CONTRACT

- A. No assignment by Contractor of any amount or any part of this contract or of the funds to be received there under will be recognized unless such assignment has had the written approval of the Director and the surety has been given due notice of such assignment and has furnished written consent thereto. In addition to the usual recitals in assignment contracts, the following language must be set forth: "It is agreed that the funds to be paid to the assignee under this assignment are subject to performance by the Contractor of this contract and to claims or liens for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms or corporations rendering such services or supplying such materials."

ARTICLE 1.11 - INDEMNIFICATION

- A. Contractor agrees to indemnify and save harmless Owner and its respective commissioners, officers, officials, agents, consultants and employees and Designer, their agents, servants and employees, from and against any and all liability for damage arising from injuries to persons or damage to property occasioned by any acts or omissions of Contractor, any subcontractors, agents, servants or employees, including any and all expense, legal or otherwise, which may be incurred by Owner or Designer, its agents, servants or employees, in defense of any claim, action or suit.
- B. The obligations of the Contractor under this paragraph shall not extend to the liability of the Designer, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, contract changes, design or specifications, or (2) giving of or the failure to

give directions or instructions by the Designer, his agents or employees as required by this contract documents provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 1.12 - DISPUTES AND DISAGREEMENTS

It is hereby expressly agreed and understood that in case any controversy or difference of opinion arises during construction, best efforts will be given to resolution at the field level. Should those efforts be unsuccessful, the Contractor has the right to appeal in writing, the decision of the Director's Designee to the Director at Room 730 Truman Building, P.O. Box 809, Jefferson City, Missouri 65102. The decision of the Director shall be final and binding on all parties.

ARTICLE 2 -- OWNER/DESIGNER RESPONSIBILITIES

- A. The Owner shall give all orders and directions contemplated under this contract relative to the execution of the work. During progress of work the Owner will be represented at the project site by the Construction Representative and/or Designer, whose responsibilities are to see that this contract is properly fulfilled.
- B. The Owner shall at all times have access to the work whenever it is in preparation or progress. The Contractors shall provide proper facilities for such access and for inspection and supervision.
- C. All materials and workmanship used in the work shall be subject to the inspection of the Designer and Construction Representative, and any work which is deemed defective shall be removed, rebuilt or made good immediately upon notice. The cost of such correction shall be borne by the Contractor. Contractor shall not be entitled to an extension of the contract completion date in order to remedy defective work. All rejected materials shall be immediately removed from the site of the work.
- D. If the Contractor fails to proceed at once with the correction of rejected defective materials or workmanship, the Owner may, by separate contract or otherwise, have the defects remedied or rejected. Materials removed from the site and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.
- E. Failure or neglect on the part of Owner to observe faulty work, or work done which is not in accordance with the drawings and specifications shall not relieve the Contractor from responsibility

for correcting such work without additional compensation.

- F. The Owner shall have the right to direct the Contractor to uncover any completed work.
 - 1. If the Contractor fails to adequately notify the Construction Representative and/or Designer of an inspection as required by the Contract Documents, the Contractor shall, upon written request, uncover the work. The Contractor shall bear all costs associated with uncovering and again covering the work exposed.
 - 2. If the Contractor is directed to uncover work, which was not otherwise required by the Contract Documents to be inspected, and the work is found to be defective in any respect, no compensation shall be allowed for this work. If, however, such work is found to meet the requirements of this contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 10% shall be allowed the Contractor.
- G. The Designer shall give all orders and directions contemplated under this contract relative to the scope of the work and shall give the initial interpretation of the contract documents.
- H. The Owner may file a written notice to the Contractor to dismiss immediately any subcontractors, project managers, superintendents, foremen, workers, watchmen or other employees whom the Owner may deem incompetent, careless or a hindrance to proper or timely execution of the work. The Contractor shall comply with such notice as promptly as practicable without detriment to the work or its progress.
- I. If in the Owner's judgment it becomes necessary at any time to accelerate work, when ordered by the Owner in writing, the Contractor shall redirect resources to such work items and execute such portions of the work as may be required to complete the work within the current approved contract schedule.

ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES

The Contractor shall register and utilize the Owner's eBuilder digital project management system for submission of documents described in the following sections. This includes but is not limited to submittals as required by designer, payment applications, Request for Information (RFI), construction change orders, Request for Proposals (RFP), Designer Supplemental Instructions (DSI), etc.

ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS

- A. The Contractor may request use of any article, device, product, material, fixture, form or type of construction which in the judgment of the Owner and Designer is equal in all respects to that named. Standard products of manufacturers other than those specified will be accepted when, prior to the ordering or use thereof, it is proven to the satisfaction of the Owner and Designer that they are equal in design, strength, durability, usefulness and convenience for the purpose intended.
- B. Any changes required in the details and dimensions indicated on the drawings for the substitution of products other than those specified shall be properly made at the expense of the Contractor requesting the substitution or change.
- C. The Contractor shall submit a request for such substitutions in writing to the Owner and Designer within twenty (20) working days after the date of the "Notice to Proceed." Thereafter no consideration will be given to alternate forms of accomplishing the work. This Article does not preclude the Owner from exercising the provisions of Article 4 hereof.
- D. Any request for substitution by the Contractor shall be submitted in accordance with SECTION 002113 - INSTRUCTIONS TO BIDDERS.
- E. When a material has been approved, no change in brand or make will be permitted unless:
 - 1. Written verification is received from the manufacturer stating they cannot make delivery on the date previously agreed, or
 - 2. Material delivered fails to comply with contract requirements.

ARTICLE 3.2 -- SUBMITTALS

- A. The Contractor's submittals must be submitted with such promptness as to allow for review and approval so as not to cause delay in the work. The Contractor shall coordinate preparation and processing of submittals with performance of construction activities.

Coordinate each submittal with fabrication, = purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

Submit four (4) copies to the Designer and additional copies as required for the subcontractors and material suppliers. Also provide copies to meet the requirements for maintenance manuals.

- B. All subcontractors' shop drawings and schedules shall be submitted by the Contractor and shall bear evidence that Contractor has received, reviewed, and approved them. Any shop drawings and

schedules submitted without this evidence will be returned to the Contractor for resubmission.

- C. The Contractor shall include with the shop drawing, a letter indicating any and all deviations from the drawings and/or specifications. Failure to notify the Designer of such deviations will be grounds for subsequent rejection of the related work or materials. If, in the opinion of the Designer, the deviations are not acceptable, the Contractor will be required to furnish the item as specified and indicated on the drawings.
- D. The Designer shall check shop drawings and schedules with reasonable promptness and approve them only if they conform to the design concept of the project and comply with the information given in the contract documents. The approval shall not relieve the Contractor from the responsibility to comply with the drawings and specifications, unless the Contractor has called the Designer's attention to the deviation, in writing, at the time of submission and the Designer has knowingly approved thereof. An approval of any such modification will be given only under the following conditions:
 - 1. It is in the best interest of the Owner
 - 2. It does not increase the contract sum and/or completion time
 - 3. It does not deviate from the design intent
 - 4. It is without prejudice to any and all rights under the surety bond.
- E. No extension of time will be granted because of the Contractor's failure to submit shop drawings and schedules in ample time to allow for review, possible resubmission, and approval. Fabrication of work shall not commence until the Contractor has received approval. The Contractor shall furnish prints of approved shop drawings and schedules to all subcontractors whose work is in any way related to the work under this contract. Only prints bearing this approval will be allowed on the site of construction
- F. The Contractor shall maintain a complete file on-site of approved shop drawings available for use by the Construction Representative.

ARTICLE 3.3 – AS-BUILT DRAWINGS

- A. The Contractor shall update a complete set of the construction drawings, shop drawings and schedules of all work monthly by marking changes, and at the completion of their work (prior to submission of request for final payment) note all changes and turn the set over to the Construction Representative. The updates shall show all addenda, all field changes that were made to adapt to field conditions, changes resulting from contract

changes or supplemental instructions, and all locations of structures, buried installations of piping, conduit, and utility services. All buried and concealed items both inside and outside shall be accurately located as to depth and referenced to permanent features such as interior or exterior wall faces and dimensions shall be given in a neat and legible manner in a contrasting colored pencil or ink. If approved by the Designer, an electronic file format may be provided.

ARTICLE 3.4 – GUARANTY AND WARRANTIES

A. General Guaranty

- 1. Neither the final certificate of payment nor any provision in the contract documents nor partial use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with contract requirements.
- 2. The Contractor or surety shall remedy any defects in the work and pay for any damage to property resulting there from which shall appear within a period of one (1) year from the date of substantial completion unless a longer period is otherwise specified or a differing guaranty period has been established in the substantial completion certificate. The Owner will give notice of observed defects with reasonable promptness.
- 3. In case of default on the part of the Contractor in fulfilling this part of this contract, the Owner may correct the work or repair the damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor or surety.
- 4. The work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's guaranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment

B. Extended Warranty

Manufacturer's certificates of warranty shall be obtained for all major equipment. Warranty shall be obtained for at least one year. Where a longer

period is offered at no additional cost or called for in the specific equipment specifications, the longer period shall govern.

ARTICLE 3.5 -- OPERATION AND MAINTENANCE MANUALS

A. Immediately after equipment submittals are approved and no later than ten (10) working days prior to the substantial completion inspection, the Contractor shall provide to the Designer three (3) copies of operating instructions and service manuals, containing the following:

1. Start-up and Shut-down Procedures: Provide a step-by-step write up of all major equipment. When manufacturer's printed start-up, trouble shooting and shut-down procedures are available; they may be incorporated into the operating manual for reference.
2. Operating Instructions: Written operating instructions shall be included for the efficient and safe operation of all equipment.
3. Equipment List: List of all major equipment as installed shall be prepared to include model number, capacities, flow rate, name plate data, shop drawings and air and water balance reports.
4. Service Instructions: Provide the following information for all pieces of equipment.
 - a. Recommended spare parts including catalog number and name of local supplier or factory representative.
 - b. Belt sizes, types, and lengths.
 - c. Wiring diagrams.
5. Manufacturer's Certificate of Warranty as described in Article 3.4.
6. Prior to the final payment, furnish to the Designer three (4) copies of parts catalogs for each piece of equipment furnished by him/her on the project with the components identified by number for replacement ordering.

B. Submission of operating instructions shall be done in the following manner.

1. Manuals shall be in quadruplicate, and all materials shall be bound into volumes of standard 8½" x 11" hard binders. Large drawings too bulky to be folded into 8½" x 11" shall be separately bound or folded and in envelopes, cross referenced and indexed with the manuals.
2. The manuals shall identify project name, project number, and include the name and

address of the Contractor, subcontractors and manufacturers who were involved with the activity described in that particular manual.

3. Internally subdivide the binder contents with permanent page dividers, logically organized with tab titles clearly printed under reinforced laminated plastic tabs.
4. Contents: Prepare a Table of Contents for each volume, with each product or system description identified.

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall keep on site, during progress of the work, a competent superintendent satisfactory to the Construction Representative. The superintendent shall represent the Contractor and all agreements made by the superintendent shall be binding. The superintendent shall carefully study and compare all drawings, specifications and other instructions and shall promptly notify the Construction Representative and Designer, in writing, any error, inconsistency or omission which may be discovered. The superintendent shall coordinate all work on the project. Any change of the superintendent shall be approved by the Construction Representative.
- B. Contractor shall, at all times, enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him/her.
- C. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and insure completion thereof within the time specified.
- D. The Contractor and each of his subcontractors shall submit to the Construction Representative, through the Designer such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.
- E. The Contractor, subcontractors, and material suppliers shall upon written request, give the Owner access to all time cards, material invoices, payrolls, estimates, profit and loss statements, and all other direct or indirect costs related to this work.
- F. The Contractor shall be responsible for laying out all contract work such as layout of architectural, structural, mechanical and electrical work, which shall be coordinated with layouts of subcontractors

for general construction work. The Contractor is also responsible for unloading, uncrating and handling of all materials and equipment to be erected or placed by him/her, whether furnished by Contractor or others. No extra charges or compensation will be allowed as a result of failure to verify dimensions before ordering materials or fabricating items.

- G. The Contractor must notify the Construction Representative at least one working day before placing concrete or burying underground utilities, pipelines, etc.
- H. Contractors shall prearrange time with the Construction Representative for the interruption of any facility operation. Unless otherwise specified in these documents, all connections, alterations or relocations as well as all other portions of the work will be performed during normal working hours.
- I. The Contractor shall coordinate all work so there will not be prolonged interruptions of existing equipment operation. Any existing plumbing, heating, ventilating, air conditioning or electrical disconnections necessary for the project, which affect portions of this construction or building or any other building must be scheduled with the Construction Representative to minimize or avoid any disruption of facility operations. In no case, unless previously approved in writing by the Construction Representative, shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities either intentionally or accidentally shall not relieve the Contractor responsible for the interruption from the responsibility to repair and restore the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.
- J. Contractors shall limit operations and storage of materials to the area within the project, except as necessary to connect to existing utilities, and shall not encroach on neighboring property. The Contractor shall be responsible for repair of their damage to property on or off the project site occurring during construction of project. All such repairs shall be made to the satisfaction of the property owner.
- K. Unless otherwise permitted, all materials shall be new and both workmanship and materials shall be of the best quality.
- L. Unless otherwise provided and stipulated within these specifications, the Contractor shall furnish, construct, and/or install and pay for materials, devices, mechanisms, equipment, all necessary personnel, utilities including, but not limited to water, heat, light and electric power, transportation

services, applicable taxes of every nature, and all other facilities necessary for the proper execution and completion of the work.

- M. Contractor shall carefully examine the plans and drawings and shall be responsible for the proper fitting of his material, equipment and apparatus into the building.
- N. The Contractor or subcontractors shall not overload, or permit others to overload, any part of any structure during the performance of this contract.
- O. All temporary shoring, bracing, etc., required for the removal of existing work and/or for the installation of new work shall be included in this contract. The Contractor shall make good, at no cost to the Owner, any damage caused by improper support or failure of shoring in any respect. Each Contractor shall be responsible for shoring required to protect his work or adjacent property and improvements of Owner and shall be responsible for shoring or for giving written notice to adjacent property owners. Shoring shall be removed only after completion of permanent supports.
- P. The Contractor shall provide at the proper time such material as is required for support of the work. If openings are required, whether shown on drawings or not, the Contractor shall see that they are properly constructed.
- Q. During the performance of work the Contractor shall be responsible for providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences and other devices appropriately located on site which will give proper and understandable warning to all persons of danger of entry onto land, structure or equipment.
- R. The Contractor shall be responsible for protection, including weather protection, and proper maintenance of all equipment and materials.
- S. The Contractor shall be responsible for care of the finished work and shall protect same from damage or defacement until substantial completion by the Owner. If the work is damaged by any cause, the Contractor shall immediately begin to make repairs in accordance with the drawings and specifications. Contractor shall be liable for all damage or loss unless attributable to the acts or omissions of the Owner or Designer. Any claim for reimbursement shall be submitted in accordance with Article 4. After substantial completion the Contractor will only be responsible for damage resulting from acts or omissions of the Contractor or subcontractors through final warranty.
- T. In the event the Contractor encounters an unforeseen hazardous material, the Contractor

shall immediately stop work in the area affected and report the condition to the Owner and Designer in writing. The Contractor shall not be required, pursuant to Article 4, to perform, any work relating to hazardous materials.

- U. In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 4.
- V. Before commencing work, Contractors shall confer with the Construction Representative and facility representative and review any facility rules and regulations which may affect the conduct of the work.
- W. Project signs will only be erected on major projects and only as described in the specifications. If no sign is specified, none shall be erected.

ARTICLE 3.7 -- SUBCONTRACTS

- A. Subcontractor assignments as identified in the bid form shall not be changed without written approval of the Owner. The Owner will not approve changes of a listed subcontractor unless the Contractor documents, to the satisfaction of the Owner that the subcontractor cannot or will not perform the work as specified.
- B. The Contractor is fully responsible to the Owner for the acts and omissions of all subcontractors and of persons either directly or indirectly employed by them.
- C. Every subcontractor shall be bound by the applicable terms and provisions of these contract documents, but no contractual relationship shall exist between any subcontractor and the Owner unless the right of the Contractor to proceed with the work is suspended or this contract is terminated as herein provided, and the Owner in writing elects to assume the subcontract.
- D. The Contractor shall upon receipt of "Notice to Proceed" and prior to submission of the first payment request, notify the Designer and Construction Representative in writing of the names of any subcontractors to be used in addition to those identified in the bid form and all major material suppliers proposed for all parts of the work.

ARTICLE 4 -- CHANGES IN THE WORK

4.1 CHANGES IN THE WORK

- A. The Construction Representative, without giving notice to the surety and without invalidating this contract, may order extra work or make changes by

altering, adding to or deducting from the work, this contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract. A claim for extension of time caused by any change must be adjusted at the time of ordering such change. No future request for time will be considered.

- B. Each Contract Change shall include all costs required to perform the work including all labor, material, equipment, overheads and profit, delay, disruptions, or other miscellaneous expenses. No subsequent requests for additional compensation including claims for delay, disruption, or reduced efficiency as a result of each change will be considered. Values from the Schedule of Values will not be binding as a basis for additions to or deductions from the contract price.
- C. The amount of any adjustment in this contract price for authorized changes shall be agreed upon before such changes become effective and shall be determined, through submission of a request for proposal, as follows:
 - 1. By an acceptable fixed price proposal from the Contractor. Breakdowns shall include all takeoff sheets of each Contractor and subcontractor. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
 - 2. By a cost-plus-fixed-fee (time and material) basis with maximum price, total cost not to exceed said maximum. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
 - 3. By unit prices contained in Contractor's original bid form and incorporated in the construction contract.
- D. Overhead and Profit on Contract Changes shall be applied as follows:

- 1. The overhead and profit charge by the Contractor and all subcontractors shall be considered to include, but is not limited to: incidental job burdens, small truck (under 1 ton) expense, mileage, small hand tools,

warranty costs, company benefits and general office overhead. Project supervision including field supervision and job site office expense shall be considered a part of overhead and profit unless a compensable time extension is granted.

2. The percentages for overhead and profit charged on Contract Changes shall be negotiated, and may vary according to the nature, extent, and complexity of the work involved. However, the overhead and profit for the Contractor or subcontractor actually performing the work shall not exceed 14%. When one or more tiers of subcontractors are used, in no event shall any Contractor or subcontractor receive as overhead and profit more than 3% of the cost of the work performed by any of his subcontractors. In no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty percent (20%) of the cost of materials, labor and equipment (exclusive of Contractor or any Subcontractor overhead and profit) necessary to put the contract change work in place.
 3. The Contractor will be allowed to add the cost of bonding and insurance to their cost of work. This bonding and insurance cost shall not exceed 2% and shall be allowed on the total cost of the added work, including overhead and profit.
 4. On proposals covering both increases and decreases in the amount of this contract, the application of overhead and profit shall be on the net change in the cost of the work.
 5. The percentage for overhead and profit to be credited to the Owner on Contract Changes that are solely decreases in the quantity of work or materials shall be negotiated, and may vary according to the nature, extent and complexity of the work involved, but in no case shall be less than ten percent (10%). If the percentage for overhead and profit charged for work added by Contract Changes for this contract has been negotiated to less than 10%, the negotiated rate shall then apply to credits as well.
- E. No claim for an addition to this contract sum shall be valid unless authorized as aforesaid in writing by the Owner. In the event that none of the foregoing methods are agreed upon, the Owner may order the Contractor to perform work on a time and material basis. The cost of such work shall be determined by the Contractor's actual labor and material cost to perform the work plus overhead and profit as outlined herein. The

Designer and Construction Representative shall approve the Contractor's daily time and material invoices for the work involved.

- F. If the Contractor claims that any instructions involve extra cost under this contract, the Contractor shall give the Owner's Representative written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work. No such claim shall be valid unless so made and authorized by the Owner, in writing.
- G. In an emergency affecting the safety of life or of the structure or of adjoining property, the Contractor, without special instruction or authorization from the Construction Representative, is hereby permitted to act at their discretion to prevent such threatened loss or injury. The Contractor shall submit a claim for compensation for such emergency work in writing to the Owner's Representative.

ARTICLE 4.2 – CHANGES IN COMPLETION TIME

- A. Extension of the number of work days stipulated in the Contract for completion of the work with compensation may be made when:
 1. The contractor documents that proposed Changes in the work, as provided in Article 4.1, extends construction activities critical to contract completion date, OR
 2. The Owner suspends all work for convenience of the Owner as provided in Article 7.3, OR
 3. An Owner caused delay extends construction activities critical to contract completion (except as provided elsewhere in these General Conditions). The Contractor is to review the work activities yet to begin and evaluate the possibility of rescheduling the work to minimize the overall project delay.
- B. Extension of the number of work days stipulated in the Contract for completion of the work without compensation may be made when:
 1. Weather-related delays occur, subject to provisions for the inclusion of a specified number of "bad weather" days when provided for in Section 012100-Allowances, OR
 2. Labor strikes or acts of God occur, OR
 3. The work of the Contractor is delayed on account of conditions which were beyond the control of the Contractor, subcontractors or suppliers, and were not the result of their fault or negligence.
- C. No time extension or compensation will be provided for delays caused by or within the control

of the Contractor, subcontractors or suppliers and for concurrent delays caused by the Owner.

- D. The Contractor shall notify the Owner promptly of any occurrence or conditions which in the Contractor's opinion results in a need for an extension of time. The notice shall be in writing and shall include all necessary supporting materials with details of any resultant costs and be submitted in time to permit full investigation and evaluation of the Contractor's claim. The Owner shall promptly acknowledge the Contractor's notice and, after recommendation from the Owner's Representative and/or Designer, shall provide a decision to the Contractor. Failure on the part of the Contractor to provide such notice and to detail the costs shall constitute a waiver by the Contractor of any claim. Requests for extensions of time shall be for working days only.

ARTICLE 5 - CONSTRUCTION AND COMPLETION

ARTICLE 5.1 – CONSTRUCTION COMMENCEMENT

- A. Upon receipt of the "Intent to Award" letter, the Contractor must submit the following properly executed instruments to the Owner:
1. Contract;
 2. Performance/payment bond as described in Article 6.1;
 3. Certificates of Insurance, or the actual policies themselves, showing that the Contractor has obtained the insurance coverage required by Article 6.2.
 4. Written Affirmative Action Plans as required in Article 1.4.

Above referenced items must be received by the Owner within ten (10) working days after the effective date of the contract. If not received, the Owner may treat the failure to timely submit them as a refusal by the Contractor to accept a contract for this work and may retain as liquidated damages the Contractor's bid bond, cashier's check or certified check as provided in the Instructions to Bidders. Upon receipt the Owner will issue a "Notice to Proceed" with the work to the Contractor.

- B. Within the time frame noted in Section 013200 - Schedules, following receipt of the "Notice to Proceed", the Contractor shall submit to the Owner a progress schedule and schedule of values, showing activities through the end of the contract period. Should the Contractor not receive written notification from the Owner of the disapproval of the schedule of values within fifteen (15) working

days, the Contractor may consider it approved for purpose of determining when the first monthly Application and Certification for Payment may be submitted.

- C. The Contractor may commence work upon receipt of the Division of Facilities Management, Design and Construction's "Notice to Proceed" letter. Contractor shall prosecute the work with faithfulness and energy, and shall complete the entire work on or before the completion time stated in the contract documents or pay to the Owner the damages resulting from the failure to timely complete the work as set out within Article 5.4.

ARTICLE 5.2 -- PROJECT CONSTRUCTION

- A. Each Contractor shall submit for the Owner's approval, in reproducible form, a progress schedule showing the rate of progress and the order of the work proposed to carry on various phases of the project. The schedule shall be in conformance with the requirements outlined in Section 013200 – Schedules.
- B. Contractor shall employ and supply a sufficient force of workers, material, and equipment and shall pay when due, any worker, subcontractor or supplier and otherwise prosecute the work with such diligence so as to maintain the rate of progress indicated on the progress schedule, prevent work stoppage, and insure completion of the project within the time specified.

ARTICLE 5.3 -- PROJECT COMPLETION

- A. Substantial Completion. A Project is substantially complete when construction is essentially complete and work items remaining to be completed can be done without interfering with the Owner's ability to use the Project for its intended purpose.
1. Once the Contractor has reached what they believe is Substantial Completion, the Contractor shall notify the Designer and the Construction Representative of the following:
 - a. That work is essentially complete with the exception of certain listed work items. The list shall be referred to as the "Contractor's Punch."
 - b. That all Operation and Maintenance Manuals have been assembled and submitted in accordance with Article 3.5A.
 - c. That the Work is ready for inspection by the Designer and Construction Representative. The Owner shall be entitled to a minimum of ten working

days notice before the inspection shall be performed.

2. If the work is acceptable, the Owner shall issue a Certificate of Substantial Completion, which shall set forth the responsibilities of the Owner and the Contractor for utilities, security, maintenance, damage to the work and risk of loss. The Certificate shall also identify those remaining items of work to be performed by the Contractor. All such work items shall be complete within 30 working days of the date of the Certificate, unless the Certificate specifies a different time. If the Contractor shall be required to perform tests that must be delayed due to climatic conditions, it is understood that such tests and affected equipment will be identified on the Certificate and shall be accomplished by the Contractor at the earliest possible date. Performance of the tests may not be required before Substantial Completion can be issued. The date of the issuance of the Certificate of Substantial Completion shall determine whether or not the work was completed within the contract time and whether or not Liquidated Damages are due.
 3. If the work is not acceptable, and the Owner does not issue a Certificate of Substantial Completion, the Owner shall be entitled to charge the Contractor with the Designer's and Owner's costs of re-inspection, including time and travel.
- B. Partial Occupancy. Contractor agrees that the Owner shall be permitted to occupy and use any completed or partially completed portions of the Project, when such occupancy and use is in the Owner's best interest. Owner shall notify Contractor of its desire and intention to take Partial Occupancy as soon as possible but at least ten (10) working days before the Owner intends to occupy. If the Contractor believes that the portion of the work the Owner intends to occupy is not ready for occupancy, the Contractor shall notify the Owner immediately. The Designer shall inspect the work in accordance with the procedures above. If the Contractor claims increased cost of the project or delay in completion as a result of the occupancy, he shall notify the Owner immediately but in all cases before occupancy occurs.
- C. Final Completion. The Project is finally complete when the Certificate of Substantial Completion has been issued and all work items identified therein as incomplete have been completed, and when all administrative items required by the contract have been completed. Final Completion entitles the Contractor to payment of the outstanding balance of the contract amount including all change orders

and retainage. Within five (5) working days of the date of the Certificate of Substantial Completion, the Contractor shall identify the cost to complete any outstanding items of work. The Designer shall review the Contractor's estimate and either approve it or provide an independent estimate for all such items. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2 or release the contract balance to the Contractor less 150% of the approved estimate to complete the outstanding items. Upon completion of the outstanding items, when a final cost has been established, any monies remaining shall be paid to the Contractor. Failure to complete items of work does not relieve the Contractor from the obligation to complete the administrative requirements of the contract, such as the provisions of Article 5.3 **FAILURE TO COMPLETE ALL ITEMS OF WORK UNDER THE CONTRACT SHALL BE CONSIDERED A DEFAULT AND BE GROUNDS FOR CONTRACT TERMINATION AND DEBARMENT.**

- D. Liquidated Damages. Contractor agrees that the Owner may deduct from the contract price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in this contract for each work day after the Contract Completion Day on which work is not Substantially Complete. Assessment of Liquidated Damages shall not relieve the Contractor or the surety of any responsibility or obligation under the Contract. In addition, the Owner may, without prejudice to any other rights, claims, or remedies the Owner may have including the right to Liquidated Damages, charge the Contractor for all additional expenses incurred by the Owner and/or Designer as the result of the extended contract period through Final Completion. Additional Expenses shall include but not be limited to the costs of additional inspections.
- E. Early Completion. The Contractor has the right to finish the work before the contract completion date; however, the Owner assumes no liability for any hindrances to the Contractor unless Owner caused delays result in a time extension to the contract completion date. The Contractor shall not be entitled to any claims for lost efficiencies or for delay if a Certificate of Substantial Completion is given on or before the Contract Completion Date.

ARTICLE 5.4 -- PAYMENT TO CONTRACTOR

- A. Payments on account of this contract will be made monthly in proportion to the work which has been completed. Request for payment must be submitted on the Owner's forms. No other pay request will

be processed. Supporting breakdowns must be in the same format as Owner's forms and must provide the same level of detail. The Designer will, within 5 working days from receipt of the contractor's request for payment either issue a Certificate for Payment to the Owner, for such amount as the Designer determines is properly due, or notify the Contractor in writing of reasons for withholding a Certificate. The Owner shall make payment within 30 calendar days after the "Application and Certification for Payment" has been received and certified by the Designer. The following items are to be attached to the contractor's pay request:

1. Updated construction schedule
 2. Certified payrolls consisting of name, occupation and craft, number of hours worked and actual wages paid for each individual employee, of the Contractor and all subcontractors working on the project
- B. The Owner shall retain 5 percent of the amount of each such payment application, except as allowed by Article 5.4, until final completion and acceptance of all work covered by this contract.
- C. Each payment made to Contractor shall be on account of the total amount payable to Contractor and all material and work covered by paid partial payment shall thereupon become the sole property of Owner. This provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made or restoration of any damaged work or as a waiver of the right of Owner to require fulfillment of all terms of this contract.
- D. Materials delivered to the work site and not incorporated in the work will be allowed in the Application and Certification for Payment on the basis of one hundred (100%) percent of value, subject to the 5% retainage providing that they are suitably stored on the site or in an approved warehouse in accordance with the following requirements:
1. Material has previously been approved through submittal and acceptance of shop drawings conforming to requirements of Article 3.2 of General Conditions.
 2. Delivery is made in accordance with the time frame on the approved schedule.
 3. Materials, equipment, etc., are properly stored and protected from damage and deterioration and remain so - if not, previously approved amounts will be deleted from subsequent pay applications.

4. The payment request is accompanied by a breakdown identifying the material equipment, etc. in sufficient detail to establish quantity and value.
- E. The Contractor shall be allowed to include in the Application and Certification for Payment, one hundred (100%) of the value, subject to retainage, of major equipment and material stored off the site if all of the following conditions are met:
1. The request for consideration of payment for materials stored off site is made at least 15 working days prior to submittal of the Application for Payment including such material. Only materials inspected will be considered for inclusion on Application for Payment requests.
 2. Materials stored in one location off site are valued in excess of \$25,000.
 3. That a Certificate of Insurance is provided indicating adequate protection from loss, theft conversion or damage for materials stored off site. This Certificate shall show the State of Missouri as an additional insured for this loss.
 4. The materials are stored in a facility approved and inspected, by the Construction Representative.
 5. Contractor shall be responsible for, Owner costs to inspect out of state facilities, and any delays in the completion of the work caused by damage to the material or for any other failure of the Contractor to have access to this material for the execution of the work.
- F. The Owner shall determine the amount, quality and acceptability of the work and materials which are to be paid for under this contract. In the event any questions shall arise between the parties, relative to this contract or specifications, determination or decision of the Owner or the Construction Representative and the Designer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.
- G. Payments Withheld: The Owner may withhold or nullify in whole or part any certificate to such extent as may be necessary to protect the Owner from loss on account of:
1. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for the item or

items. The cost of corrective action(s) shall be borne by the Contractor.

2. A reasonable doubt that this contract can be completed for the unpaid balance.
3. Failure of the Contractor to update as-built drawings monthly for review by the Construction Representative.
4. Failure of the Contractor to update the construction schedule.

When the Construction Representative is satisfied the Contractor has remedied above deficiencies, payment shall be released.

H. Final Payment: Upon receipt of written notice from the Contractor to the Designer and Project Representative that the work is ready for final inspection and acceptance, the Designer and Project Representative, with the Contractor, shall promptly make such inspection. If the work is acceptable and the contract fully performed, the Construction Representative shall complete a final acceptance report and the Contractor will be directed to submit a final Application and Certification for Payment. If the Owner approves the same, the entire balance shall be due and payable, with the exception of deductions as provided for under Article 5.4.

1. Where the specifications provide for the performance by the Contractor of (certain tests for the purpose of balancing and checking the air conditioning and heating equipment and the Contractor shall have furnished and installed all such equipment in accordance with the specifications, but said test cannot then be made because of climatic conditions, such test shall may be considered as required under the provisions of the specifications, Section 013300 and this contract may be substantial Full payment will not be made until the tests have been made and the equipment and system is finally accepted. If the tests are not completed when scheduled, the Owner may deduct 150% of the value of the tests from the final payment.
2. The final payment shall not become due until the Contractor delivers to the Construction Representative:
 - a) A complete file of releases, on the standard form included in the contract documents as "Final Receipt of Payment and Release Form", from subcontractors and material suppliers evidencing payment in full for services, equipment and materials, as the case may require, if the Owner approves, or a consent from

the Surety to final payment accepting liability for any unpaid amounts.

- b) An Affidavit of Compliance with Prevailing Wage Law, in the form as included in this contract specifications, properly executed by each subcontractor, and the Contractor
 - c) Certified copies of all payrolls
 - d) As-built drawings
3. If any claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a claim including all costs and a reasonable attorney's fee.
 4. Missouri statute requires prompt payment from the Owner to the Contractor within thirty calendar days and from the Contractor to his subcontractors within fifteen calendar days. Failure to make payments within the required time frame entitles the receiving party to charge interest at the rate of one and one half percent per month calculated from the expiration of the statutory time period until paid.
 5. The value of all unused unit price allowances and/or 150% of the value of the outstanding work items, and/or liquidated damages may be deducted from the final pay request without executing a Contract Change. Any unit price items which exceed the number of units in the contract may be added by Contract Change.

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

- A. Contractor shall furnish a performance/payment bond in an amount equal to 100% of the contract price to guarantee faithful performance of the contract and 100% of the contract price to guarantee the payment of all persons performing labor on the project and furnishing materials in connection therewith under this contract as set forth in the standard form of performance and payment bond included in the contract documents. The surety on such bond shall be issued by a surety company authorized by the Missouri Department of Insurance to do business in the state of Missouri.
- B. All Performance/Payment Bonds furnished in response to this provision shall be provided by a bonding company with a rating of B+ or higher as established by A.M. Best Company, Inc. in their most recent publication.

ARTICLE 6.2 – INSURANCE

- A. The successful Contractor shall procure and maintain for the duration of the contract issued a policy or policies of insurance for the protection of both the Contractor and the Owner and their respective officers, officials, agents, consultants and employees. The Owner requires certification of insurance coverage from the Contractor prior to commencing work.
- B. Minimum Scope and Extent of Coverage
 - 1. General Liability
Commercial General Liability, ISO coverage form number or equivalent CG 00 01 ("occurrence" basis), or I-SO coverage form number CG 00 02, or ISO equivalent.

If ISO equivalent or manuscript general liability coverage forms are used, minimum coverage will be as follows: Premises/Operations; Independent Contractors; Products/Completed Operations; personal Injury; Broad Form Property Damage including Completed Operations; Broad Form Contractual Liability Coverage to include Contractor's obligations under Article 1.11 Indemnification and any other Special Hazards required by the work of the contract.
 - 2. Automobile Liability
Business Automobile Liability Insurance, ISO Coverage form number or equivalent CA 00 01 covering automobile liability, code 1 "ANY AUTO".
 - 3. Workers' Compensation and Employer's Liability
Statutory Workers' Compensation Insurance for Missouri and standard Employer's Liability Insurance, or the authorization to self-insure for such liability from the Missouri Division of Workers' Compensation.
 - 4. Builder's Risk or Installation Floater Insurance
Insurance upon the work and all materials, equipment, supplies, temporary structures and similar items which may be incident to the performance of the work and located at or adjacent to the site, against loss or damage from fire and such other casualties as are included in extended coverage in broad "All Risk" form, including coverage for Flood and Earthquake, in an amount not less than the replacement cost of the work or this contract price, whichever is greater, with loss payable to Contractor and Owner as their respective interests may appear.

Contractor shall maintain sufficient insurance to cover the full value of the work and materials as the work progresses, and shall furnish Owner copies of all endorsements. If Builder's Risk Reporting- Form of Endorsement is used, Contractor shall make all reports as required therein so as to keep in force an amount of insurance which will equal the replacement cost of the work, materials, equipment, supplies, temporary structures, and other property covered thereby; and if, as a result of Contractor's failure to make any such report, the amount of insurance so recoverable shall be less than such replacement cost, Contractor's interest in the proceeds of such insurance, if any, shall be subordinated to Owner's interest to the end that Owner may receive full reimbursement for its loss.

- C. Minimum Limits of Insurance
 - 1. General Liability
Contractor
\$2,000,000 combined single limit per occurrence for bodily injury, personal injury, and property damage
\$2,000,000 annual aggregate
 - 2. Automobile Liability
\$2,000,000 combined single limit per occurrence for bodily injury and property damage
 - 3. Workers' Compensation and Employers Liability
Workers' Compensation limits as required by applicable State Statutes (generally unlimited) and minimum of \$1,000,000 limit per accident for Employer's Liability.

General Liability and Automobile Liability insurance may be arranged under individual policies for the full limits required or by a combination of underlying policies with the balance provided by a form-following Excess or Umbrella Liability policy.
- D. Deductibles and Self-Insured Retentions
All deductibles, co-payment clauses, and self-insured retentions must be declared to and approved by the Owner. The Owner reserves the right to request the reduction or elimination of unacceptable deductibles or self-insured retentions, as they would apply to the Owner, and their respective officers, officials, agents, consultants and employees. Alternatively, the Owner may request Contractor to procure a bond guaranteeing

payment of losses and related investigations, claims administration, and defense expenses.

E. Other Insurance Provisions and Requirements

The respective insurance policies and coverage, as specified below, must contain, or be endorsed to contain the following conditions or provisions:

1. General Liability

The Owner, and its respective commissioners, officers, officials, agents, consultants and employees shall be endorsed as additional insured's by ISO form CG 20 26 Additional Insured - Designated Person or Organization. As additional insured's, they shall be covered as to work performed by or on behalf of the Contractor or as to liability which arises out of Contractor's activities or resulting from the performance of services or the delivery of goods called for by the Contract.

Contractor's insurance coverage shall be primary with respect to all additional insured's. Insurance of self-insurance programs maintained by the designated additional -insured's shall be excess of the Contractor's insurance and shall not contribute with it.

Additionally, the Contractor and Contractor's general liability insurer shall agree to waive all rights of subrogation against the Owner and any of their respective officers, officials, agents, consultants or employees for claims, losses, or expenses which arise out of Contractor's activities or result from the performance of services or the delivery of goods called for by the Contract.

Contractor's failure to comply with the terms and conditions of these insurance policies shall not affect or abridge coverage for the Owner, or for any of their officers, officials, agents, consultants or employees.

2. Automobile Insurance

The Owner, and their respective officers, officials, agents, consultants and employees shall be endorsed as additional insured's by ISO form CG 20 26 - Additional Insured Designated Person or Organization. As additional insured's, they shall be covered as to work performed by or on behalf of the Contractor or as to liability which arises out of Contractor's activities or resulting from the performance of services or the delivery of goods called for by the Contract.

Contractor's insurance coverage shall be primary with respect to all additional insured's. Insurance or self-insurance

programs maintained by the designated additional insured's shall be in excess of the Contractor's insurance and shall not contribute with it.

Additionally, the Contractor and Contractor's automobile insurer shall agree to waive all rights of subrogation against the Owner and any of their respective officers, officials, agents, consultants or employees for claims, losses, or expenses which arise out of Contractor's activities or result from the performance of services or the delivery of goods called for by the Contract.

Contractor's failure to comply with the terms and conditions of these insurance policies shall not affect or abridge coverage for the Owner or for any of its officers, officials, agents, consultants or employees.

3. Workers' Compensation/Employer's Liability

Contractor's workers' compensation insurance shall be endorsed with NCCI form WC 00 03 01 A - Alternative Employer Endorsement. The Alternative Employer Endorsement shall designate the Owner as "alternate employers."

4. All Coverages

Each insurance policy required by this section of the Contract shall contain a stipulation, endorsed if necessary, that the Owner will receive a minimum of a thirty (30) calendar day advance notice of any policy cancellation. Ten (10) calendar days advance notice is required for policy cancellation due to non-payment of premium.

F. Insurer Qualifications and Acceptability

Insurance required hereunder shall be issued by an A.M. Best, "B+" rated, Class IX insurance company approved to conduct insurance business in the state of Missouri.

G. Verification of Insurance Coverage

Prior to Owner issuing a Notice to Proceed, the Contractor shall furnish the Owner with Certificate(s) of Insurance and with any applicable original endorsements evidencing the required insurance coverage. The insurance certificates and endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements received by the Owner are subject to review and approval by the Owner. The Owner reserves the right to require certified copies of all required policies at any time. If the scope of this contract will exceed one (1) year - or, if any of Contractor's applicable insurance coverage expires prior to completion of the work or services required under this contract -

the Contractor will provide a renewal or replacement certificate before continuing work or services hereunder. If the Contractor fails to provide documentation of required insurance coverage, the Owner may issue a stop work order and no additional contract completion time and/or compensation shall be granted as a result thereof.

ARTICLE 7 – SUSPENSION OR TERMINATION OF CONTRACT

ARTICLE 7.1 - FOR SITE CONDITIONS

When conditions at the site of the proposed work are considered by the Owner to be unsatisfactory for prosecution of the work, the Contractor may be ordered in writing to suspend the work or any part thereof until reasonable conditions exist. When such suspension is not due to fault or negligence of the Contractor, time allowed for completion of such suspended work will be extended by a period of time equal to that lost due to delay occasioned by ordered suspension. This will be a no cost time extension.

ARTICLE 7.2 - FOR CAUSE

A. Termination or Suspension for Cause:

1. If the Contractor shall file for bankruptcy, or should make a general assignment for the benefit of the creditors, or if a receiver should be appointed on account of insolvency, or if the contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workers or proper materials, or if the contractor should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of this contract, then the Owner may serve notice on the Contractor and the surety setting forth the violations and demanding compliance with this contract. Unless within ten (10) consecutive calendar days after serving such notice, such violations shall cease and satisfactory arrangements for correction be made, the Owner may suspend the Contractor's right to proceed with the work or terminate this contract.
2. In the event the Owner suspends Contractor's right to proceed with the work or terminates the contract, the Owner may demand that the Contractor's surety take over and complete the work on this contract, after the surety submits a written proposal to the Owner and receives written approval and upon the surety's failure or refusal to do so within ten (10) consecutive

calendar days after demand therefore, the Owner may take over the work and prosecute the same to completion by bid or negotiated contract, or the Owner may elect to take possession of and utilize in completing the work such materials, supplies, appliances and plant as may be on the site of the work, and all subcontractors, if the Owner elects, shall be bound to perform their contracts.

- B. The Contractor and its surety shall be and remain liable to the Owner for any excess cost or damages occasioned to the Owner as a result of the actions above set forth.
- C. The Contractor in the event of such suspension or termination shall not be entitled to receive any further payments under this contract until the work is wholly finished. Then if the unpaid balance under this contract shall exceed all expenses of the Owner as certified by the Director, such excess shall be paid to the Contractor; but, if such expenses shall exceed the unpaid balance as certified by the Director, the Contractor and their surety shall be liable for and shall pay the difference and any damages to the Owner.
- D. In exercising Owner's right to secure completion of the work under any of the provisions hereof, the Director shall have the right to exercise Owner's sole discretion as to the manner, methods and reasonableness of costs of completing the work.
- E. The rights of the Owner to suspend or terminate as herein provided shall be cumulative and not exclusive and shall be in addition to any other remedy provided by law.
- F. The Contractor in the event of such suspension or termination may be declared ineligible for Owner contracts for a minimal period of twelve (12) months. Further, no contract will be awarded to any Contractor who lists in their bid form any subcontractor whose prior performance has contributed, as determined by the Owner, to a breach of a contract. In order to be considered for state-awarded contracts after this period, the Contractor/subcontractor will be required to forward acceptance reports to the Owner regarding successful completion of non-state projects during the intervening twelve (12) months from the date of default. No contracts will be awarded to a subcontractor/Contractor until the ability to perform responsibly in the private sector has been proven to the Owner.

ARTICLE 7.3 -- FOR CONVENIENCE

- A. The Owner may terminate or suspend the Contract or any portion of the Work without cause at any time, and at the Owner's convenience. Notification of a termination or suspension shall be in writing

and shall be given to the Contractor and their surety. If the Contract is suspended, the notice will contain the anticipated duration of the suspension or the conditions under which work will be permitted to resume. If appropriate, the Contractor will be requested to demobilize and re-mobilize and will be reimbursed time and costs associated with the suspension.

B. Upon receipt of notification, the Contractor shall:

1. Cease operations when directed.
2. Take actions to protect the work and any stored materials.
3. Place no further subcontracts or orders for material, supplies, services or facilities except as may be necessary to complete the portion of the Contract that has not been terminated. No claim for payment of materials or supplies ordered after the termination date shall be considered.
4. Terminate all existing subcontracts, rentals, material, and equipment orders.

5. Settle all outstanding liabilities arising from termination with subcontractors and suppliers.

6. Transfer title and deliver to the Owner, work in progress, completed work, supplies and other material produced or acquire for the work terminated, and completed or partially completed plans, drawings information and other property that, if the Contract had been completed, would be required to be furnished to the Owner.

C. For termination without cause and at the Owner's convenience, in addition to payment for work completed prior to date of termination, the Contractor may be entitled to payment of other documented costs directly associated with the early termination of the contract. Payment for anticipated profit and unapplied overhead will not be allowed.

SECTION 007300 - SUPPLEMENTARY CONDITIONS

1.0 GENERAL:

A. These Supplementary General Conditions clarify, add, delete, or otherwise modify standard terms and conditions of DIVISION 0, BIDDING AND CONTRACTING REQUIREMENTS.

2.0 CONTACTS:

Designer: Sean Ray
Clark & Enersen
2020 Baltimore Ave., Suite 300
Kansas City, MO 64108
Telephone: 816-474-8237
Email: sean.ray@clarkenersen.com

Construction Representative: Ricky Howard
Division of Facilities Management, Design and Construction
836 N Scott
Belton, MO 64012
Telephone: 816-728-0385
Email: ricky.howard@oa.mo.gov

Project Manager: Jared Cook
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-690-6733
Email: Jared.Cook2@oa.mo.gov

Contract Specialist: Mandy Roberson
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-522-0074
Email: mandy.roberson@oa.mo.gov

3.0 NOTICE: ALL BID MATERIALS ARE DUE AT THE TIME OF BID SUBMITTAL. THERE IS NO SECOND SUBMITTAL FOR THIS PROJECT.

4.0 FURNISHING CONSTRUCTION DOCUMENTS:

- A. The Owner will furnish the Contractor with approximately 5 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 5 sets of explanatory or change drawings at no charge.
- C. The Contractor may make copies of the documents as needed with no additional cost to the Owner.

5.0 SAFETY REQUIREMENTS

Contractor and subcontractors at any tier shall comply with RSMo 292.675 and Article 1.3, E, of Section 007213, General Conditions.

7.0 OFF-SITE BORROW & SPOIL DEPOSIT SITES FOR FEDERALLY FUNDED PROJECTS:

All Federally funded projects which involve off-site borrow and/or off-site spoil deposit sites will require written certification that the site(s) are in compliance with the National Environmental Protection Act and all related applicable Federal and State laws and regulations. If the need for off-site borrow and/or spoil sites is stipulated in the Contract Documents, the following applies:

- A. The Contractor is required to use only the designated site described in the Contract Documents. If another off-site area is proposed by the Contractor, the Contractor must provide written certification to the Division of Facilities Management, Design and Construction Project Representative that the proposed borrow or spoil site has been cleared of environmental concerns in accordance with all

applicable Federal and State laws and regulations. These include but are not limited to the following: Clean Water Act; the Endangered Species Act; the National Historic Preservation Act (NHPA) (The site must have Section 106 Clearance); the Farmland Protection Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response; Compensation and Liability Act; and RSMo Chapter 194, Section 194.400, Unmarked Human Burial Sites. Certifications shall include clearance letters and other evidence of coordination with the appropriate regulatory agencies. The Missouri Historic Preservation Office, PO Box 176 Jefferson City, MO 65102, may be contacted to provide assistance with the NHPA and cultural resource issues pertaining to the borrow and spoil site regulations. The Missouri State Historic Preservation Office can provide a list of qualified and certified archaeologists to assist in borrow and spoil site investigations.

- B. If project conditions require off-site borrow or off-site deposit of spoils, the Contractor will be required to provide written certification to the Division of Facilities Management, Design and Construction Project Representative that the proposed borrow or spoil site has been cleared of environmental concerns in accordance with all applicable Federal and State laws and regulations. These include but are not limited to the following: Clean Water Act; the Endangered Species Act; the National Historic Preservation Act (NHPA) (The site must have Section 106 Clearance); the Farmland Protection Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response; Compensation and Liability Act; and RSMo Chapter 194, Section 194.400, Unmarked Human Burial Sites. Certifications shall include clearance letters and other evidence of coordination with the appropriate regulatory agencies. The Missouri Historic Preservation Office, PO Box 176 Jefferson City, MO 65102, may be contacted to provide assistance with the NHPA and cultural resource issues pertaining to the borrow and spoil site regulations. The Missouri State Historic Preservation Office can provide a list of qualified and certified archaeologists to assist in borrow and spoil site investigations.
- C. The Owner recognizes that additional time (beyond what is allowed in the Construction Contract) may be required in order to secure the aforementioned certifications and approvals. Should more time be required, the Owner will consider approval of a no-cost time extension contract change. The Contractor will be required to provide documentation that substantiates the need for the time extension.

SUPPLEMENTARY GENERAL CONDITIONS
FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS

1.0 Notice of Federal Funding

This project is being performed in whole or in part using federal funds. Therefore, all work or services performed by the Contractor and its subcontractors shall be subject to the terms and conditions set forth below and in Form FHWA-1273, in addition to all terms and conditions in the Construction Contract, General Conditions, and other contract documents. Contractor (or subcontractor) must insert Form FHWA 1273 in each contract and subcontract and further require its inclusion in all lower tier subcontracts to comply with 2 C.F.R. 200.331. 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 concepts, rules, and guidelines set forth in 2 C.F.R. 200 describing allowable costs and administrative requirements apply.

2.0 Definitions

As used herein, “Federal Government” means the government of the United States of America. “Federal Agency” means an agency, entity, department or division of the Federal Government that is providing funding for this project. All other terms shall have the meanings established in the Construction Contract, General Conditions, and/or Project Manual, unless such definitions conflict with a definition provided in an applicable statute or regulation.

3.0 Conflicting Terms or Conditions

To the extent that any terms or conditions set forth herein conflict with the Construction Contract or its General Conditions, the more stringent of the two terms and conditions shall govern.

4.0 No Obligation by Federal Government

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, Contractor, or any other party pertaining to any matter resulting from the contract.

5.0 Compliance with Federal Laws, Regulations and Executive Orders

The Contractor and its subcontractors and suppliers are required to comply with all applicable Federal laws, regulations, and executive orders, regardless of whether set forth herein. The Contractor shall assist and enable the State of Missouri in complying with any requirements imposed by the Federal Agency as a condition of funding.

6.0 Compliance with Civil Rights Provisions

The Contractor shall comply with all Federal statutes, executive orders, and regulations relating to nondiscrimination. These include, but are not limited to the following:

Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin;

Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex;

Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps;

The Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age;

Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing;

Title VII of the Civil Rights Act of 1964 (42 U.S.C. part 2000(e)), which prohibits discrimination against employees on the basis of religion;

Any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and

The requirements of any other nondiscrimination statute(s) that may apply to the application.

7.0 Equal Employment Opportunity (41 C.F.R. 60-1.4(b)).

During the performance of this contract, the Contractor agrees as follows:

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

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. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicants or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor

union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

- (5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and sub contractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and sub contractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these

undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

8.0 Notice of Requirement for Affirmative Action To Ensure Equal Employment Opportunity
(Executive Order 11246, 41 C.F.R. 60-4.2)

(1) The Offeror's or 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:

Time-tables	Goals for minority participation for each trade	Goals for female participation in each trade
105	12.7	6.9

Insert Goals Established by U.S. Department of Labor: available at <https://www.dol.gov/sites/dolgov/files/ofccp/ParticipationGoals.pdf>.

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 C.F.R. pt. 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 C.F.R. 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and 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 C.F.R. pt. 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 (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

9.0 Standard Federal Equal Employment Opportunity Construction Contract Specifications
(Executive Order 11246 - 41 C.F.R. 60-4.3)

(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;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

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 America 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 C.F.R. 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 7 a 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 at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, 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 onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. 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 tests 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 work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 C.F.R. pt. 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 nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female 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 noncompliance.

(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, sexual orientation, gender identity, or national origin.

(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 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 41 C.F.R. 60-4.8.

(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).

10.0 Prohibition of Segregated Facilities

- (1) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.
- (2) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.
- (3) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

11.0 ~~Davis-Bacon Act~~ (40 U.S.C. §§ 3141-3144, and §§ 3146-3148, and 29 C.F.R. pt. 5) **The requirements of the Davis-Bacon Act are not applicable to this Project.**

~~(1) Minimum wages:~~

~~(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and 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 C.F.R. pt. 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 (a)(1)(iv) 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 § 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 conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) 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.~~

~~(ii)(A) 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:~~

~~(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and~~

~~(2) The classification is utilized in the area by the construction industry; and~~

~~(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.~~

~~(B) 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, 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 and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.~~

~~(C) 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 Administrator for determination. The 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.~~

~~(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.~~

~~(iii) 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.~~

~~(iv) 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 (write in name of Federal Agency or the loan or grant recipient) 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 required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.~~

~~(3) Payrolls and basic records.~~

~~(i) 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 (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). 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 C.F.R. 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-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.~~

~~(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 C.F.R. 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 its 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 (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the Contractor, 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 sponsoring government agency (or the applicant, sponsor, or owner).~~

~~(B) 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:~~

~~(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 C.F.R. pt. 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 C.F.R. pt. 5, and that such information is correct and complete;~~

~~(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll 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 C.F.R. pt. 3;~~

~~(3) 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.~~

~~(C) 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 (a)(3)(ii)(B) of this section.~~

~~(D) 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.~~

~~(iii) The Contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the (write the name of the agency) 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 Federal Agency may, after written notice to the Contractor, sponsor, applicant, or owner, 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 C.F.R. 5.12.~~

~~(4) Apprentices and trainees —~~

~~(i) Apprentices. 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. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen 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 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.~~

~~(ii) Trainees. Except as provided in 29 C.F.R. 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. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee 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. 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.~~

~~(iii) 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 C.F.R. pt. 30.~~

- ~~(5) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 C.F.R. pt. 3, which are incorporated by reference in this contract.~~
- ~~(6) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 C.F.R. 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal Agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses 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 C.F.R. 5.5.~~
- ~~(7) Contract termination: debarment. A breach of the contract clauses in 29 C.F.R. 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 C.F.R. 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 C.F.R. pts. 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 C.F.R. pt.s 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.~~
- ~~(i) 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 C.F.R. 5.12(a)(1).~~
- ~~(ii) 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 C.F.R. 5.12(a)(1).~~
- ~~(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.~~

12.0 Copeland "Anti-Kickback" Act

- (1) The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract. The Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled.
- (2) The Contractor or subcontractor shall insert in any subcontracts the clause above, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- (3) A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. 5.12.

13.0 Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 to 3708, 29 C.F.R. 5.5)

- (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 \$27 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 (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The Owner 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 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.

14.0 Suspension and Debarment (Executive Orders 12549 and 12689, 2 C.F.R. pt. 180)

- (1) A contract award (see 2 C.F.R. 180.220) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. 180 that implement Executive Orders 12549 (3 C.F.R. pt. 1986 Comp., p. 189) and 12689 (3 C.F.R. pt. 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.
- (2) The contractor is required to verify that none of the contractor’s principals (defined at 2 C.F.R. 180.995) or its affiliates (defined at 2 C.F.R. 180.905) are excluded (defined at 2 C.F.R. 180.940) or disqualified (defined at 2 C.F.R. 180.935).
- (3) The contractor must comply with 2 C.F.R. pt. 180, subpart C and the regulations of the granting Federal Agency regarding suspension and debarment, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

- (4) This certification is a material representation of fact relied upon by the Owner. If it is later determined that the Contractor did not comply with 2 C.F.R. pt. 180, subpart C in addition to remedies available to the Owner, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (5) By submitting a bid, the bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

15.0 Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352)

- (1) Contractors that apply or bid for an award exceeding \$100,000 agree to file the required certification (set forth below), in compliance with 31 U.S.C. § 1352 (as amended).
- (2) Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352.
- (3) Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or 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 behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an 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.
- (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 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.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

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 section 1352, title 31, U.S. Code. 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.

16.0 Procurement of Recovered Materials

The Contractor shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. § 6962). The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Information about this requirement, along with the list of EPA designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

17.0 Fair Labor Standards Act

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 C.F.R. pt. 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers. The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

18.0 Access to Records and Reports

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Agency and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

19.0 Occupational Health and Safety Act

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 C.F.R. pt. 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 C.F.R. pt. 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

20.0 Rights to Inventions

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 C.F.R. pt. 401, Rights to Inventions Made by Non-profit Organizations and Small

Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 C.F.R. 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

21.0 Energy Conservation

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201 et seq.).

22.0 Clean Air Act and Federal Water Pollution Control Act

- (1) If the amount of the Contract exceeds \$150,000, the Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.
- (2) The Contractor agrees to report each violation to the Owner, and understands and agrees that the Owner will, in turn, report each violation as required to assure notification to the Federal Agency and the appropriate Environmental Protection Agency Regional Office.
- (3) The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance.

23.0 Contractor Employee Whistleblower Rights and Requirement to Inform Employees of Whistleblower Rights

- (1) This contract and employees working on this contract will be subject to the whistleblower rights and remedies in the pilot program on contractor employee whistleblower protections established at 41 U.S.C. § 4712 by section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239) and FAR 3.908.
- (2) The Contractor shall inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. § 4712, as described in section 3.908 of the Federal Acquisition Regulation.
- (3) The Contractor shall insert the substance of this clause, including this paragraph (c), in all subcontracts over the simplified acquisition threshold.

24.0 Veteran's Preference

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

25.0 Drug Free Workplace Act

The Contractor shall provide a drug free workplace in accordance with the Drug Free Workplace Act of 1988, 41 U.S.C. Chapter 81, and all applicable regulations. The Contractor shall report any conviction of the Contractor's personnel under a criminal drug statute for violations occurring on the Contractor's premises or off the Contractor's premises while conducting official business. A report of a conviction shall be made to the state agency within five (5) working days after the conviction.

26.0 Access Requirements for Persons with Disabilities

Contractor shall comply with 49 U.S.C. § 5301(d), stating Federal policy that the elderly and persons with disabilities have the same rights as other persons to use mass transportation services and facilities and that special efforts shall be made in planning and designing those services and facilities to implement that policy. Contractor shall also comply with all applicable requirements of Sec. 504 of the Rehabilitation Act (1973), as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, and the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. § 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments thereto.

27.0 Seismic Safety

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Guidelines for Contract Provisions for Obligated Sponsors and Airport Improvement Program Projects Issued on June 19, 2018 Page 61 Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

28.0 Required Use of American Iron, Steel, Manufactured Products, and Construction Materials – Build America, Buy America Pub.L.No. 117-58, §§ 70901-52

The Owner is the recipient of an award of Federal financial assistance from a program for infrastructure for this project. Pursuant to the Build America, Buy America Act of the Bipartisan Infrastructure Law, enacted as the Infrastructure Investment and Jobs Act (“BIL” or “IIJA”), Pub. L. No. 117-58, none of the funds provided under the Federal award may be used unless the requirements of the domestic content procurement preference outlined below are met. Therefore, the Contractor shall ensure the following:

- (1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- (3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States. Pending OMB's issuance of final standards on construction materials, and absent any existing applicable standard in law or regulation that meets or exceeds these preliminary standards, agencies should consider “all manufacturing

processes” for construction materials to include at least the final manufacturing process and the immediately preceding manufacturing stage for the construction material.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

The Contractor must provide step certifications prior to incorporation for iron/ steel products and construction material to be permanently incorporated in the project and related to coating material applied to the iron/steel products, where each handler (supplier, fabricator, manufacturer, processor, applier of coatings, etc.) certifies that their step in the process was domestically performed.

The Owner, in consultation with the federal agency, will evaluate whether any policies or provisions relating to requirements for iron/steel and manufactured products pursuant to 23 USC 313 and 23 CFR 635.410 apply. If the Contractor determines such policies or provisions may apply, the Contractor shall timely notify the Owner.

Waivers

When necessary, recipients of Federal financial assistance may apply for, and the awarding agency may grant, a waiver from the domestic content procurement preference.

When the Federal agency has made a determination that one of the following exceptions applies, the awarding official may waive the application of the domestic content procurement preference in any case in which the agency determines that:

- (1) applying the domestic content procurement preference would be inconsistent with the public interest;
- (2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent. A request to waive the application of the domestic content procurement preference must be in writing. The agency will provide instructions on the format, contents, and supporting materials required for any waiver request. Waiver requests are subject to public comment periods of no less than 15 days and must be reviewed by the Made in America Office.

There may be instances where an award qualifies, in whole or in part, for an existing waiver described on the awarding agency web site.

If the Contractor determines that an application for a waiver is necessary or an existing waiver is applicable to this project, the Contractor shall timely notify the Owner. The Owner will make a determination if a waiver is applicable or if a waiver application is necessary. The Contractor shall not submit any waiver application or information directly to the Federal agency without prior approval by the Owner.

Definitions

“Construction materials” includes an article, material, or supply that is or consists primarily of: • non-ferrous metals; • plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); • glass (including optic glass); • lumber; or • drywall.

Items excluded from “Construction materials” include cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives. Asphalt concrete pavement mixes are typically composed of asphalt cement (a binding agent) and aggregates such as stone, sand, and gravel. Accordingly, asphalt is also excluded from the term construction materials.

“Domestic content procurement preference” means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.

“Infrastructure” includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

“Project” means the construction, alteration, maintenance, or repair of infrastructure in the United States.

29.0 Prohibition on Certain Telecommunication and Video Surveillances Services or Equipment (Pub. L. 115-232, Section 889)

Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of a Federal executive agency and recipients or subrecipients of funds from such agencies from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons. Pursuant to such provisions, the Contractor understands and agrees that the Contractor and its subcontractors shall not obligate or expend loan or grant funds from the Federal Agency under this Contract to:

- (1) Procure or obtain;
- (2) Extend or renew a contract to procure or obtain; or
- (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in [Public Law 115–232](#), section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
 - (i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
 - (ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 30

Section 083
PLATTE COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by _____

Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: _____ **March 10, 2023**

Last Date Objections May Be Filed: **April 10, 2023**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$68.54
Boilermaker	\$33.80*
Bricklayer	\$60.87
Carpenter	\$61.62
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$33.80*
Plasterer	
Communications Technician	\$63.38
Electrician (Inside Wireman)	\$68.28
Electrician Outside Lineman	\$58.82
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	\$33.80*
Glazier	\$33.80*
Ironworker	\$67.98
Laborer	\$48.19
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$54.59
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$61.68
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$53.97
Plumber	\$74.61
Pipe Fitter	
Roofer	\$58.79
Sheet Metal Worker	\$72.86
Sprinkler Fitter	\$66.39
Truck Driver	\$33.80*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in RSMO Section 290.210.

Heavy Construction Rates for
PLATTE County

Section 083

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$61.99
Millwright	
Pile Driver	
Electrician (Outside Lineman)	\$58.82
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$49.79
General Laborer	
Skilled Laborer	
Operating Engineer	\$58.57
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$51.31
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OVERTIME and HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "**overtime work**" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

SECTION 01 10 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists installation of a new culvert beneath a portion of an existing paved trail at Weston Bend State Park. The Work will also include demolition, new concrete trail construction, earthmoving, rip rap placement, seeding, and guardrail installation.
 - 1. Project Location: 1660 Highway 45 North, Weston, MO 64098
 - 2. Owner: State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction, Harry S Truman State Office Building, Post Office Box 809, 301 West High Street, Jefferson City, Missouri 65102.
- B. Contract Documents, dated August 31, 2022 were prepared for the Project by Clark & Enersen.
- C. The Work will be constructed under a single prime contract.

1.3 WORK SEQUENCE

- A. The Work will be conducted in one phase. Work of this phase shall be substantially complete, ready for occupancy within 120 Working Days of commencement of construction. Coordinate with owner as to any required sequencing of construction activities required to accommodate needs of users occupying buildings during construction.

1.4 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have full use of the premises for construction operations, including use of the site. The Contractor's use of the premises limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy and use by the public.
 - 2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.5 OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: The Owner will occupy the site and existing building during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate owner usage. Perform the Work so as not to interfere with the Owner's operations.

1.6 MISCELLANEOUS PROVISIONS

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 10 00

SECTION 01 21 00 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Weather allowances.
- C. Related Sections include the following:
 - 1. Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.

1.3 WEATHER ALLOWANCE

- A. Included within the completion period for this project are a specified number of "bad weather" days (see Schedule of Allowances).
- B. The Contractor's progress schedule shall clearly indicate the bad weather day allowance as an "activity" or "activities". In the event weather conditions preclude performance of critical work activities for 50% or more of the Contractor's scheduled workday, that day shall be declared unavailable for work due to weather (a "bad weather" day) and charged against the above allowance. Critical work activities will be determined by review of the Contractor's current progress schedule.
- C. The Contractor's Representative and the Construction Representative shall agree monthly on the number of "bad weather" days to be charged against the allowance. This determination will be documented in writing and be signed by the Contractor and the Construction Representatives. If there is a failure to agree on all or part of the "bad weather" days for a particular month, that disagreement shall be noted on this written document and signed by each party's representative. Failure of the Contractor's representative to sign the "bad weather" day documentation after it is presented, with or without the notes of disagreement, shall constitute agreement with the "bad weather" day determination contained in that document.
- D. There will be no modification to the time of contract performance due solely to the failure to deplete the "bad weather" day allowance.
- E. Once this allowance is depleted, a no cost Change Order time extension will be executed for "bad weather" days, as defined above, encountered during the remainder of the Project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Weather Allowance: Included within the completion period for this Project 10 "bad weather" days.

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
 - 1. Take measurements and compute quantities. Measurements and quantities shall be verified by Architect/Engineer. Assist by providing necessary equipment and workers as required.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price. Unit shall cover both additions and subtractions to the

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1 – Imported Structural Fill

1. Description: Additional fill material imported into site for earthwork according to Section 31 20 20 "Earth Moving."
2. Unit of Measurement: Cubic Yard
3. Base Bid quantity: 440 cubic yards

B. Unit Price No. 2 – Durable Stone Rip Rap

1. Description: Additional durable stone rip rap material imported into site for embankment protection according to MODOT Section 611 "Embankment Protection" (See Appendix).
2. Unit of Measurement: Ton
3. Base Bid quantity: 250 tons

END OF SECTION 01 22 00

SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract Modifications.
- B. Related Sections include the following:
 - 1. Section 01 21 00 "Allowances" for procedural requirements for handling and processing Allowances.
 - 2. Section 01 31 15 "Project Management Communications" for administrative requirements for communications.
 - 3. Section 00 72 13, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
 - 4. Section 00 72 13, Article 4.0 "Changes in the Work" for Change Order requirements.

1.3 REQUESTS FOR INFORMATION

- A. In the event that the Contractor or Subcontractor, at any tier, determines that some portion of the Drawings, Specifications, or other Contract Documents requires clarification or interpretation, the Contractor shall submit a "Request for Information" (RFI) in writing to the Designer. A RFI may only be submitted by the Contractor and shall only be submitted on the RFI forms provided by the Owner. The Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed. In the RFI, the Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.
- B. Responses to RFI shall be issued within ten (10) working days of receipt of the Request from the Contractor unless the Designer determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Designer, the Designer will, within five (5) working days of receipt of the request, notify the Contractor of the anticipated response time. If the Contractor submits a RFI on a time sensitive activity on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Designer to respond to the request provided that the Designer responds within the ten (10) working days set forth above.
- C. Responses from the Designer will not change any requirement of the Contract Documents. In the event the Contractor believes that a response to a RFI will cause a change to the requirements of the Contract Document, the Contractor shall give written notice to the Designer requesting a Change Order for the work. Failure to give such written notice within ten (10) working days, shall waive the Contractor's right to seek additional time or cost under Article 4, "Changes in the Work" of the General Conditions.

1.4 MINOR CHANGES IN THE WORK

- A. Designer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Amount or the Contract Time, on "Designer's Supplemental Instructions" (DSI).

1.5 PROPOSAL REQUESTS

- A. The Designer or Owner Representative will issue a detailed description of proposed Changes in the Work that may require adjustment to the Contract Amount or the Contract Time. The proposed Change Description will be issued using the "Request for Proposal" (RFP) form. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by the Designer or Owner Representative are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within ten (10) working days after receipt of Proposal Request, submit a proposal for the cost adjustments to the Contract Amount and the Contract Time necessary to execute the Change. The Contractor shall submit his proposal on the appropriate Change Order Detailed Breakdown form. Subcontractors may use the appropriate Change Order Detailed Breakdown form or submit their proposal on their letterhead provided the same level of detail is included. All proposals shall include:
 - a. A detailed breakdown of costs per Article 4.1 of the General Conditions.
 - b. If requesting additional time per Article 4.2 of the General Conditions, include an updated Contractor's Construction Schedule that indicates the effect of the Change including, but not limited to, changes in activity duration, start and finish times, and activity relationship.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, the Designer or Owner Representative will issue a Change Order for signatures of Owner and Contractor on the "Change Order" form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 31 00 – COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Projects including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
- B. Each Contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific Contractor.
- C. Related Sections include the following:
 - 1. Section 01 32 00 "Schedules" for preparing and submitting Contractor's Construction Schedule.
 - 2. Articles 1.8.B and 1.8.C of Section 007213 "General Conditions" for coordinating meetings onsite.
 - 3. Article 5.4.H of Section 007213 "General Conditions" for coordinating Closeout of the Contract.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections, which depend on each other for proper installation, connection, and operation.
- B. Coordination: Each Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each Contractor shall coordinate its operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other Contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components including mechanical and electrical.

- C. Prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate Contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other Contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Startup and adjustment of systems.
 - 8. Project Closeout activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
- B. Key Personnel Names: Within fifteen (15) work days of starting construction operations, submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 PROJECT MEETINGS

- A. The Owner's Construction Representative will schedule a Pre-Construction Meeting prior to beginning of construction. The date, time, and exact place of this meeting will be determined after Contract Award and notification of all interested parties. The Contractor shall arrange to have the Job Superintendent and all prime Subcontractors present at the meeting. During the Pre-Construction Meeting, the construction procedures and information necessary for submitting payment requests will be discussed and materials distributed along with any other pertinent information.
 - 1. Minutes: Designer will record and distribute meeting minutes.

- B. Progress Meetings: The Owner's Construction Representative will conduct Monthly Progress Meetings as stated in Articles 1.8.B and 1.8.C of Section 007213 "General Conditions".
1. Minutes: Designer will record and distribute to Contractor the meeting minutes.
- C. Preinstallation Conferences: Contractor shall conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of Manufacturers and Fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Designer and Construction Representative of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration including requirements for the following:
 - a. Contract Documents
 - b. Options
 - c. Related RFIs
 - d. Related Change Orders
 - e. Purchases
 - f. Deliveries
 - g. Submittals
 - h. Review of mockups
 - i. Possible conflicts
 - j. Compatibility problems
 - k. Time schedules
 - l. Weather limitations
 - m. Manufacturer's written recommendations
 - n. Warranty requirements
 - o. Compatibility of materials
 - p. Acceptability of substrates
 - q. Temporary facilities and controls
 - r. Space and access limitations
 - s. Regulations of authorities having jurisdiction
 - t. Testing and inspecting requirements
 - u. Installation procedures
 - v. Coordination with other Work
 - w. Required performance results
 - x. Protection of adjacent Work
 - y. Protection of construction and personnel
 3. Contractor shall record significant conference discussions, agreements, and disagreements including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
6. Revise paragraph below if Project requires holding progress meetings at different intervals. Insert special intervals such as "every third Tuesday" to suit special circumstances.
7. Project name
8. Name and address of Contractor
9. Name and address of Designer
10. RFI number including RFIs that were dropped and not submitted
11. RFI description
12. Date the RFI was submitted
13. Date Designer's response was received
14. Identification of related DSI or Proposal Request, as appropriate

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 31 15 - PROJECT MANAGEMENT COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.
- B. Section 01 33 00 - Submittals
- C. Section 01 26 00 – Contract Modification Procedures

1.2 SUMMARY

- A. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, E-Builder® ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.
 - 1. Project management communications is available through E-Builder® as provided by "e-Builder®" in the form and manner required by the Owner.
 - 2. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited
- B. Support: E-Builder® will provide on-going support through on-line help files.
- C. Copyrights and Ownership: Nothing in this specification or the subsequent communications supersedes the parties' obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the project specified herein.
- D. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files
- E. Authorized Users: Access to the web site will be by individuals who are authorized users.
 - 1. Individuals shall complete the E-Builder New Company/User Request Form located at the following web site: <https://oa.mo.gov/facilities/vendor-links/contractor-forms>. Completed forms shall be emailed to the following email address: OA.FMDCE-BuilderSupport@oa.mo.gov.
 - 2. Authorized users will be contacted directly and assigned a temporary user password.
 - 3. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.
- F. Administrative Users: Administrative users have access and control of user licenses and all posted items. DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE! Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s).

- G. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Builder® to send messages. Communication functions are as follows:
1. Document Integrity and Revisions:
 - a. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
 - b. The system shall make it easy to identify revised or superseded documents and their predecessors.
 - c. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.
 2. Document Security:
 - a. The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!**
 3. Document Integration:
 - a. Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.
 4. Reporting:
 - a. The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.
 5. Notifications and Distribution:
 - a. Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
 6. Required Document Types:
 - a. RFI, Request for Information.
 - b. Submittals, including record numbering by drawing and specification section.
 - c. Transmittals, including record of documents and materials delivered in hard copy.
 - d. Meeting Minutes.
 - e. Application for Payments (Draft or Pencil).
 - f. Review Comments.
 - g. Field Reports.
 - h. Construction Photographs.
 - i. Drawings.
 - j. Supplemental Sketches.
 - k. Schedules.
 - l. Specifications.
 - m. Request for Proposals
 - n. Designer's Supplemental Instructions
 - o. Punch Lists
- H. Record Keeping: Except for paper documents, which require original signatures and large format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be submitted by transmission in electronic form to the E-Builder® web site by licensed users.

- a. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier shall respond to documents received in electronic form on the web site, and consider them as if received in paper document form.
 - b. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.
 - c. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.
- I. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:
1. Providing suitable computer systems for each licensed user at the users normal work location¹ with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
 2. Each of the above referenced computer systems shall have the following minimum system² and software requirements:
 - a. Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)
 - 1) Operating System: Windows XP or newer
 - 2) Internet Browser: Internet Explorer 6.01SP2+ (Recommend IE7.0+)
 - 3) Minimum Recommend Connection Speed: 256K or above
 - 4) Processor Speed: 1 Gigahertz and above
 - 5) RAM: 512 mb
 - 6) Operating system and software shall be properly licensed.
 - 7) Internet Explorer version 7 (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
 - 8) Adobe Acrobat Reader (current version is a free distribution for download).
 - 9) Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable.)

END OF SECTION 01 31 15

¹ The normal work location is the place where the user is assigned for more than one-half of his time working on this project.

² The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area.

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SECTION 01 32 00 – SCHEDULE – BAR CHART

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for a Bar Chart Schedule for the project construction activities, schedule of submittals, and schedule for testing.

PART 2 - PRODUCTS – (Not Applicable)

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURES

- A. The Contractor shall submit to the Designer, within ten (10) working days following the Notice to Proceed, a Progress Schedule including Schedule of Values showing the rate of progress the Contractor agrees to maintain and the order in which he proposed to carry out the various phases of Work. No payments shall be made to the Contractor until the Progress Schedule has been approved by the Owner.
 - 1. The Schedule of Values must have the following line items included with the value of the item as indicated below:
 - a. O&M's (Owner's Manual)
 - 1) \$1,000,000.00 (One million) and under – 2% of the total contract amount
 - 2) Over \$1,000,000.00 (One million) – 1% of the total contract amount
 - b. Close Out Documents
 - 1) \$1,000,000.00 (One million) and under – 2% of the total contract amount
 - 2) Over \$1,000,000.00 (One million) – 1% of the total contract amount
 - c. General Conditions
 - 1) No more than 10%
- B. The Contractor shall submit an updated Schedule for presentation at each Monthly Progress Meeting. The Schedule shall be updated by the Contractor as necessary to reflect the current Schedule and its relationship to the original Schedule. The updated Schedule shall reflect any changes in the logic, sequence, durations, or completion date. Payments to the Contractor shall be suspended if the Progress Schedule is not adequately updated to reflect actual conditions.
- C. The Contractor shall submit Progress Schedules to Subcontractors to permit coordinating their Progress Schedules to the general construction Work. The Contractor shall coordinate preparation and processing of Schedules and reports with performance of other construction activities.

3.2 CONSTRUCTION PROGRESS SCHEDULE – BAR CHART SCHEDULE

- A. Bar-Chart Schedule: The Contractor shall prepare a comprehensive, fully developed, horizontal bar chart-type Contractor's Construction Schedule. The Contractor for general construction shall prepare the Construction Schedule for the entire Project. The Schedule shall show the percentage of work to be completed at any time, anticipated monthly payments by Owner, as well as significant dates (such as completion of excavation, concrete foundation work, underground lines, superstructure, rough-ins, enclosure, hanging of fixtures, etc.) which shall serve as check points to determine compliance with the approved Schedule. The Schedule shall also include an activity for the number of "bad" weather days specified in Section 012100 – Allowances.
1. The Contractor shall provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.
 - a. If practical, use the same Schedule of Values breakdown for schedule time bars.
 2. The Contractor shall provide a base activity time bar showing duration for each construction activity. Each bar is to indicate start and completion dates for the activity. The Contractor is to place a contrasting bar below each original schedule activity time for indicating actual progress and planned remaining duration for the activity.
 3. The Contractor shall prepare the Schedule on a minimal number of separate sheets to readily show the data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on schedule with other construction activities. Include minor elements involved in the overall sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
 5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other required schedules and reports.
 6. Indicate the Intent to Award and the Contract Substantial Completion dates on the schedule.
- B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
1. Requirement for Phased completion
 2. Work by separate Contractors
 3. Work by the Owner
 4. Pre-purchased materials
 5. Coordination with existing construction
 6. Limitations of continued occupancies
 7. Un-interruptible services
 8. Partial Occupancy prior to Substantial Completion
 9. Site restrictions
 10. Provisions for future construction
 11. Seasonal variations
 12. Environmental control

- C. Work Stages: Use crosshatched bars to indicate important stages of construction for each major portion of the Work. Such stages include, but are not necessarily limited to, the following:
1. Subcontract awards
 2. Submittals
 3. Purchases
 4. Mockups
 5. Fabrication
 6. Sample testing
 7. Deliveries
 8. Installation
 9. Testing
 10. Adjusting
 11. Curing
 12. Startup and placement into final use and operation
- D. Area Separations: Provide a separate time bar to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a "major area" is a story of construction, a separate building, or a similar significant construction element.
1. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure
 - c. Completion of mechanical installation
 - d. Completion of the electrical portion of the Work
 - e. Substantial Completion

3.3 SCHEDULE OF SUBMITTALS

- A. Upon acceptance of the Construction Progress Schedule, prepare and submit a complete schedule of submittals. Coordinate the submittal schedule with Section 013300 SUBMITTALS, the approved Construction Progress Schedule, list of subcontracts, Schedule of Values and the list of products.
- B. Prepare the schedule in chronological order. Provide the following information
1. Scheduled date for the first submittal
 2. Related Section number
 3. Submittal category
 4. Name of the Subcontractor
 5. Description of the part of the Work covered
 6. Scheduled date for resubmittal
 7. Scheduled date for the Designer's final release or approval
- C. Distribution: Following the Designer's response to the initial submittal schedule, print and distribute copies to the Designer, Owner, subcontractors, and other parties required to comply with submittal dates indicated.

1. Post copies in the Project meeting room and temporary field office.
 2. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned part of the Work and are no longer involved in construction activities.
- D. Schedule Updating: Revise the schedule after each meeting or other activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

3.4 SCHEDULE OF INSPECTIONS AND TESTS

- A. Prepare a schedule of inspections, tests, and similar services required by the Contract Documents. Submit the schedule with (15) days of the date established for commencement of the Contract Work. The Contractor is to notify the testing agency at least (5) working days in advance of the required tests unless otherwise specified.
- B. Form: This schedule shall be in tabular form and shall include, but not be limited to, the following:
1. Specification Section number
 2. Description of the test
 3. Identification of applicable standards
 4. Identification of test methods
 5. Number of tests required
 6. Time schedule or time span for tests
 7. Entity responsible for performing tests
 8. Requirements for taking samples
 9. Unique characteristics of each service
- C. Distribution: Distribute the schedule to the Owner, Architect, and each party involved in performance of portions of the Work where inspections and tests are required.

END OF SECTION 01 32 00

SECTION 01 33 00 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.
- B. Section 01 31 15 “Project Management Communications” for administrative requirements for communications.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work including the following:
 - 1. Shop Drawings
 - 2. Product Data
 - 3. Samples
 - 4. Quality Assurance Submittals
 - 5. Construction Photographs
 - 6. Operating and Maintenance Manuals
 - 7. Warranties
- B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Construction Progress Schedule including Schedule of Values
 - 2. Performance and Payment Bonds
 - 3. Insurance Certificates
 - 4. Applications for Payment
 - 5. Certified Payroll Reports
 - 6. Partial and Final Receipt of Payment and Release Forms
 - 7. Affidavit – Compliance with Prevailing Wage Law
 - 8. Record Drawings
 - 9. Notifications, Permits, etc.
- C. The Contractor is obliged and responsible to check all shop drawings and schedules to assure compliance with contract plans and specifications. The Contractor is responsible for the content of the shop drawings and coordination with other contract work. Shop drawings and schedules shall indicate, in detail, all parts of an Item or Work including erection and setting instructions and integration with the Work of other trades.
- D. The Contractor shall at all times make a copy, of all approved submittals, available on site to the Construction Representative.

1.3 SUBMITTAL PROCEDURES

- A. The Contractor shall comply with the General and Supplementary Conditions and other applicable sections of the Contract Documents. The Contractor shall submit, with such promptness as to cause no delay in his work or in that of any other contractors, all required submittals indicated in Part 3.1 of this section and elsewhere in the Contract Documents. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Designer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

- B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:
 - 1. Date of Submission
 - 2. Name of Project
 - 3. Location
 - 4. Section Number of Specification
 - 5. State Project Number
 - 6. Name of Submitting Contractor
 - 7. Name of Subcontractor
 - 8. Indicate if Item is submitted as specified or as a substitution

1.4 SHOP DRAWINGS

- A. Comply with the General Conditions, Article 3.2.

- B. The Contractor shall submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.

- C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings including the following information:
 - 1. Dimensions
 - 2. Identification of products and materials included by sheet and detail number
 - 3. Compliance with specified standards
 - 4. Notation of coordination requirements
 - 5. Notation of dimensions established by field measurement

6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8½"x11" but no larger than 36"x48".

1.5 PRODUCT DATA

- A. The Contractor shall comply with the General Conditions, Article 3.2.
- B. The Contractor shall collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information including the following information:
 - a. Manufacturer's printed recommendations
 - b. Compliance with Trade Association standards
 - c. Compliance with recognized Testing Agency standards
 - d. Application of Testing Agency labels and seals
 - e. Notation of dimensions verified by field measurement
 - f. Notation of coordination requirements
 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.6 SAMPLES

- A. The Contractor shall comply with the General Conditions, Article 3.2.
- B. The Contractor shall submit full-size, fully fabricated samples, cured and finished as specified, and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 1. The Contractor shall mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Designer's sample including the following:
 - a. Specification Section number and reference
 - b. Generic description of the Sample
 - c. Sample source
 - d. Product name or name of the Manufacturer
 - e. Compliance with recognized standards
 - f. Availability and delivery time
 2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

- b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other Sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.
 - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
3. Field samples are full-size examples erected onsite to illustrate finishes, coatings, or finish materials and to establish the Project standard.
- a. The Contractor shall comply with submittal requirements to the fullest extent possible. The Contractor shall process transmittal forms to provide a record of activity.

1.7 QUALITY ASSURANCE DOCUMENTS

- A. The Contractor shall comply with the General Conditions, Article 3.2
- B. The Contractor shall submit quality control submittals including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- C. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the Manufacturer certifying compliance with specified requirements.
 - 1. Signature: Certification shall be signed by an officer of the Manufacturer or other individual authorized to contractually bind the Company.
- D. Inspection and Test Reports: The Contractor shall submit the required inspection and test reports from independent testing agencies as specified in this Section and in other Sections of the Contract Documents.
- E. Construction Photographs: The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.
 - 1. The Contractor shall submit digital photographs. The Construction Administrator shall determine the quantity and naming convention at the preconstruction meeting.
 - 2. The Contractor shall identify each photograph with project name, location, number, date, time, and orientation.
 - 3. The Contractor shall submit progress photographs monthly unless specified otherwise. Photographs shall be taken one (1) week prior to submitting.
 - 4. The Contractor shall take four (4) site photographs from differing directions and a minimum of five (5) interior photographs indicating the relative progress of the Work.

1.8 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES

- A. The Contractor shall submit all required manufacturer's operating instructions, maintenance/service manuals, and warranties in accordance with the General Conditions, Article 3.5, and Supplementary Conditions along with this and other Sections of the Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REQUIRED SUBMITTALS

- A. Contractor shall submit the following information for materials and equipment to be provided under this contract.

SPEC SECTION	TITLE	CATEGORY
01 32 00	Schedules	Construction Schedule
01 32 00	Schedules	Schedule of Values
01 32 00	Schedules	List of Subcontractors
01 32 00	Schedules	Major Material Suppliers
06 10 00	Rough Carpentry	Product Data
31 20 00	Earth Moving	Product Data
31 20 00	Earth Moving	Test Report
31 25 00	Erosion and Sediment Controls	Product Data
32 13 13	Concrete Paving	Test Report
32 13 13	Concrete Paving	Product Data
32 92 00	Turf and Grasses	Product Data
32 92 00	Turf and Grasses	Certification
32 92 00	Turf and Grasses	Test Report
33 46 00	Subdrainage Systems	Shop Drawings
33 46 00	Subdrainage Systems	Product Data

END OF SECTION 01 33 00

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SECTION 013513.31 - SITE SECURITY AND HEALTH REQUIREMENTS (DNR)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUBMITTALS

- A. List of required submittals:
 - 1. Materials Safety Data Sheets for all hazardous materials to be brought onsite.
 - 2. Schedule of proposed shutdowns, if applicable.
 - 3. A list of the names of all employees who will submit fingerprints for a background check, and the signed privacy documents identified below for each employee.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ACCESS TO THE SITE

- A. The Contractor shall arrange with Facility Representatives to establish procedures for the controlled entry of workers and materials into the work areas at the Facility.
- B. The Contractor shall establish regular working hours with Facility Representatives. The Contractor must report changes in working hours or overtime to Facility Representatives and obtain approval twenty-four (24) hours ahead of time. The Contractor shall report emergency overtime to Facility Representatives as soon as it is evident that overtime is needed. The Contractor must obtain approval from Facility Representatives for all work performed after dark.
- C. The Contractor shall provide the name and phone number of the Contractor's employee or agent who is in charge onsite; this individual must be able to be contacted in case of emergency. The Contractor must be able to furnish names and address of all employees upon request.
- D. All construction personnel shall visibly display issued identification cards.

3.2 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS

- A. The Contractor shall take all necessary precautions to guard against and eliminate possible fire hazards.
 - 1. Onsite burning is prohibited.
 - 2. The Contractor shall store all flammable or hazardous materials in proper

- containers located outside the buildings or offsite, if possible.
3. The Contractor shall provide and maintain, in good order, during construction fire extinguishers as required by the National Fire Protection Association. In areas of flammable liquids, asphalt, or electrical hazards, 15-pound carbon dioxide or 20-pound dry chemical extinguishers shall be provided.
- B. The Contractor shall not obstruct streets or walks without permission from the Owner's Construction Representative and Facility Representatives.
 - C. The Contractor's personnel shall not exceed the speed limit of 15 mph while at the Facility unless otherwise posted.
 - D. The Contractor shall take all necessary, reasonable measures to reduce air and water pollution by any material or equipment used during construction. The Contractor shall keep volatile wastes in covered containers, and shall not dispose of volatile wastes or oils in storm or sanitary drains.
 - E. The Contractor shall keep the project site neat, orderly, and in a safe condition at all times. The Contractor shall immediately remove all hazardous waste, and shall not allow rubbish to accumulate. The Contractor shall provide onsite containers for collection of rubbish and shall dispose of it at frequent intervals during the progress of the Work.
 - F. Fire exits, alarm systems, and sprinkler systems shall remain fully operational at all times, unless written approval is received from the Owner's Construction Representative and the appropriate Facility Representative at least twenty-four (24) hours in advance. The Contractor shall submit a written time schedule for any proposed shutdowns.
 - G. For all hazardous materials brought onsite, Material Safety Data Sheets shall be on site and readily available upon request at least a day before delivery.
 - H. Alcoholic beverages or illegal substances shall not be brought upon the Facility premises. The Contractor's workers shall not be under the influence of any intoxicating substances while on the Facility premises.

3.3 DISRUPTION OF UTILITIES

- A. The Contractor shall give a minimum of seventy-two (72) hours written notice to the Construction Representative and the Facility Representative before disconnecting electric, gas, water, fire protection, or sewer service to any building.
- B. The Contractor shall give a minimum of seventy-two (72) hours written notice to the Construction Representative and Facility Representative before closing any access drives, and shall make temporary access available, if possible. The Contractor shall not obstruct streets, walks, or parking.

3.4 PROTECTION OF PERSONS AND PROPERTY

A. SAFETY PRECAUTIONS AND PROGRAMS

1. The Contractor shall at all times conduct operations under this Contract in a manner to avoid the risk of bodily harm to persons or risk of damage to any property. The Contractor shall promptly take precautions which are necessary and adequate against conditions created during the progress of the Contractor's activities hereunder which involve a risk of bodily harm to persons or a risk of damage to property. The Contractor shall continuously inspect Work, materials, and equipment to discover and determine any such conditions and shall be solely responsible for discovery, determination, and correction of any such conditions. The Contractor shall comply with applicable safety laws, standards, codes, and regulations in the jurisdiction where the Work is being performed, specifically, but without limiting the generality of the foregoing, with rules regulations, and standards adopted pursuant to the Williams-Steiger Occupational Safety and Health Act of 1970 and applicable amendments.
2. All contractors, subcontractors and workers on this project are subject to the Construction Safety Training provisions 292.675 RSMo.
3. In the event the Contractor encounters on the site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), lead, mercury, or other material known to be hazardous, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner's Representative and the Architect in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner's Representative and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless by written agreement of the Owner's Representative and the Contractor. "Rendered Harmless" shall mean that levels of such materials are less than any applicable exposure standards, including but limited to OSHA regulations.

B. SAFETY OF PERSONS AND PROPERTY

1. The Contractor shall take reasonable precautions for safety of, and shall provide protection to prevent damage, injury, or loss to:
 - a. clients, staff, the public, construction personnel, and other persons who may be affected thereby;
 - b. the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor or the Contractor's Subcontractors of any tier; and
 - c. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
2. The Contractor shall give notices and comply with applicable laws, standards, codes, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss.

3. The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, safeguards for safety and protection, including, but not limited to, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.
4. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise the highest degree of care and carry on such activities under supervision of properly qualified personnel.
5. The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in this Section caused in whole or in part by the Contractor, a Subcontractor of any tier, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable, and for which the Contractor is responsible under this Section, except damage or loss attributable solely to acts or omissions of Owner or the Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's other obligations stated elsewhere in the Contract.
6. The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents, and the maintaining, enforcing and supervising of safety precautions and programs. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner's Representative and Architect. The Contractor shall hold regularly scheduled safety meetings to instruct Contractor personnel on safety practices, accident avoidance and prevention, and the Project Safety Program. The Contractor shall furnish safety equipment and enforce the use of such equipment by its employees and its subcontractors of any tier.
7. The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.
8. The Contractor shall promptly report in writing to the Owner all accidents arising out of or in connection with the Work which cause death, lost time injury, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately.
9. The Contractor shall promptly notify in writing to the Owner of any claims for injury or damage to personal property related to the work, either by or against the Contractor.
10. The Owner assumes no responsibility or liability for the physical condition or safety of the Work site or any improvements located on the Work site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time concerning any failure by the Contractor or any Subcontractor to comply with the requirements of this Paragraph.
11. In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Documents.

12. The Contractor shall maintain at his own cost and expense, adequate, safe and sufficient walkways, platforms, scaffolds, ladders, hoists and all necessary, proper, and adequate equipment, apparatus, and appliances useful in carrying on the Work and which are necessary to make the place of Work safe and free from avoidable danger for clients, staff, the public and construction personnel, and as may be required by safety provisions of applicable laws, ordinances, rules regulations and building and construction codes.

END OF SECTION 013513.31

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SECTION 01 50 00 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls including temporary utilities, support facilities, security, and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution
 - 2. Temporary electric power and light
 - 3. Temporary heat
 - 4. Ventilation
 - 5. Telephone service
 - 6. Sanitary facilities, including drinking water
 - 7. Storm and sanitary sewer
- C. Support facilities include, but are not limited to, the following:
 - 1. Field offices and storage sheds
 - 2. Temporary roads and paving
 - 3. Dewatering facilities and drains
 - 4. Temporary enclosures
 - 5. Hoists and temporary elevator use
 - 6. Temporary project identification signs and bulletin boards
 - 7. Waste disposal services
 - 8. Rodent and pest control
 - 9. Construction aids and miscellaneous services and facilities
- D. Security and protection facilities include, but are not limited to, to following:
 - 1. Temporary fire protection
 - 2. Barricades, warning signs, and lights
 - 3. Sidewalk bridge or enclosure fence for the site
 - 4. Environmental protection

1.3 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

- B. Implementation and Termination Schedule: Within (15) days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.

1.4 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations including, but not limited to, the following:
 - 1. Building code requirements
 - 2. Health and safety regulations
 - 3. Utility company regulations
 - 4. Police, fire department, and rescue squad rules
 - 5. Environmental protection regulations
- B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations". ANSI A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities".
 - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code".
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist onsite.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. If acceptable to the Designer, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry".
 - 1. For job-built temporary office, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
 - 2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.

3. For fences and vision barriers, provide minimum 3/9" (9.5mm) thick exterior plywood.
 4. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8" (16mm) thick exterior plywood.
- C. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of (15) or less. For temporary enclosures, provide translucent, nylon-reinforced laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- D. Water: Provide potable water approved by local health authorities.
- E. Open-Mesh Fencing: Provide 0.120" (3mm) thick, galvanized 2" (50mm) chainlink fabric fencing 6' (2m) high with galvanized steel pipe posts, 1½" (38mm) ID for line posts and 2½" (64mm) ID for corner posts.

2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Designer, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide ¾" (19mm), heavy-duty, abrasion-resistant, flexible rubber hoses 100' (30m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage rating.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixture where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated re-circulation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- I. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA-recommended classes for the exposures.
1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each Facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
 - 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Designer. Neither the Owner nor Designer will accept cost or use charges as a basis of claims for Change Order.
- B. Temporary Water Service: The Owner will provide water for construction purposes from the existing building system. All required temporary extensions shall be provided and removed by the Contractor. Connection points and methods of connection shall be designated and approved by the Construction Representative.
- C. Temporary Electric Power Service: The Owner will provide electric power for construction lighting and power tools. Contractors using such services shall pay all costs of temporary services, circuits, outlet, extensions, etc.
- D. Temporary Lighting: When overhead floor or roof deck has been installed, provide temporary lighting with local switching.
 - 1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
- E. Temporary Heating and Cooling: The normal heating and/or cooling system of the building shall be maintained in operation during the construction. Should the Contractor find it necessary to interrupt the normal HVAC service to spaces, which have not been vacated for construction, such interruptions shall be pre-scheduled with the Construction Representative.
- F. Temporary Toilets: Install self-contained toilet units. Use of pit-type privies will not be permitted. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Shield toilets to ensure privacy.

2. Provide separate facilities for male and female personnel.
 3. Provide toilet tissue materials for each facility.
- G. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a health and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
1. Provide paper towels or similar disposable materials for each facility.
 2. Provide covered waste containers for used material.
 3. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
- H. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Field Offices: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip office as follows:
1. Furnish with a desk and chairs, a 4-drawer file cabinet, plan table, plan rack, and a 6-shelf bookcase.
 2. Equip with a water cooler and private toilet complete with water closet, lavatory, and medicine cabinet unit with a mirror.
- C. Storage Facilities: The Owner will provide storage onsite as designated by the Facility Representative or the Construction Representative. Areas for use by the Contractor for storage will be identified at the Pre-Bid Meeting.
- D. Temporary Paving: Construct and maintain temporary roads and paving to support the indicated loading adequately and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas, and parking where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Designer.
1. Coordinate temporary paving development with subgrade grading, compaction, installation and stabilization of subbase, and installation of base and finish courses of permanent paving.
 2. Install temporary paving to minimize the need to rework the installations and to result in permanent roads and paved areas without damage or deterioration when occupied by the Owner.
 3. Delay installation of the final course of permanent asphalt concrete paving until immediately before Substantial Completion. Coordinate with weather conditions to avoid unsatisfactory results.

4. Extend temporary paving in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration, and supervision.
- E. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.
- F. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 2 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.
- G. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered “tools and equipment” and not temporary facilities.
- H. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
 1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
 2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.
- I. Temporary Exterior Lighting: Install exterior yard and sign lights so signs are visible when Work is being performed.
- J. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80°F (27°C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Designer.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonable predictable and controllable fire losses. Comply with NFPA 10 “Standard for Portable Fire Extinguishers” and NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”.
 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one (1) extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.

4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting including flashing red or amber lights.
 - D. Enclosure Fence: Before excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.
 1. Provide open-mesh, chainlink fencing with posts set in a compacted mixture of gravel and earth.
 2. Provide plywood fence, 8' (2.5m) high, framed with (4) 2"x4" (50mm x 100mm) rails, and preservative-treated wood posts spaced not more than 8' (2.5m) apart.
 - E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
 1. Storage: Where materials and equipment must be stored and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
 - F. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Designer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.

2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances as required by the governing authority.
3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
 - a. Replace significantly worn parts and parts subject to unusual operating conditions.
 - b. Replace lamps burned out or noticeably dimmed by hours of use.

END OF SECTION 01 50 00

SECTION 01 74 00 – CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for cleaning during the Project.
- B. Environmental Requirements: Conduct cleaning and waste-disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.
 - 1. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 2. Burning or burying of debris, rubbish, or other waste material on the premises is not permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator for the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

- A. General
 - 1. Retain all stored items in an orderly arrangement allowing maximum access, not impending drainage or traffic, and providing the required protection of materials.
 - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
 - 3. At least once each month, and more often if necessary, completely remove all scrap, debris, and waste material from the jobsite.
 - 4. Provide adequate storage for all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the ecology.
- B. Site
 - 1. Daily, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
 - 2. Weekly, inspect all arrangements of materials stored onsite. Re-stack, tidy, or otherwise service all material arrangements.
 - 3. Maintain the site in a neat and orderly condition at all times.
- C. Structures

1. Daily, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
2. Weekly, sweep all interior spaces clean. "Clean" for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.
3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

3.2 FINAL CLEANING

- A. General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.
 1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities including landscape development areas, of rubbish, waste material, litter, and foreign substances.
 2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 3. Remove petrochemical spills, stains, and other foreign deposits.
 4. Remove tools, construction equipment, machinery, and surplus material from the site.
 5. Remove snow and ice to provide safe access to the building.
 6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 8. Broom clean concrete floors in unoccupied spaces.
 9. Remove labels that are not permanent labels.
 10. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 11. Wipe surfaces of electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 12. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.
 13. Leave the Project clean and ready for occupancy.

- C. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.
- D. Compliances: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.
 - 1. Where extra materials of value remain after Final Acceptance by the Owner, they become the Owner's property.

END OF SECTION 01 74 00

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SECTION 03 30 00 – CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Concrete shall consist of a mixture of cement, fine aggregate, coarse aggregate and water, combined in the proportions specified for the various classes. Admixtures may be added as specifically required or permitted.

1.2 MATERIAL.

- A. All material shall be in accordance with MoDOT Division 1000, Material Details, and specifically as follows:

Item	Section
Coarse Aggregate ^a	<u>1005.2</u>
Fine Aggregate ^a	<u>1005.3</u>
Ground Granulated Blast Furnace Slag	<u>1017</u>
Fly Ash	<u>1018</u>
Cement	<u>1019</u>
Concrete Admixture	<u>1054</u>
Concrete Tinting Material	<u>1056</u>
Water	<u>1070</u>

Regardless of the gradation of the coarse and fine aggregate used in concrete for pavement or base, the aggregate shall meet the quality requirements of coarse and fine aggregate for concrete pavement.

- B. Aggregate Acceptance.

- 1. Quality control (QC) sampling and testing will be performed by the contractor and quality assurance (QA) sampling and testing will be performed by the engineer for aggregate in Portland cement concrete masonry in accordance with the following table at the last possible point of incorporation into the project. Aggregate samples may be taken either by sampling the flowing aggregate stream or upon approval by the engineer, from the stockpile.

Item	Property	QC Test Frequency	QA Test Frequency
Portland Cement Concrete Masonry	Gradation of Coarse Aggregate - AASHTO T 27 and T 11	One per 500 cubic yards per fraction per project.	One QC split per 2,500 cubic yards with a minimum of one per project. One independent QA per project for > 500 cubic yards.
	Gradation of Fine Aggregate - AASHTO T 27 and T 11		
	Deleterious Content - MoDOT Test Method TM 71		
	Absorption of Coarse Aggregate - AASHTO T 85		
	Thin or Elongated Pieces - ASTM D 4791 (+3/4 in., 5:1)	One per source per project.	One per source per year.

C. Retained Samples.

1. The contractor shall retain the QC split sample, obtained as specified in MoDOT Sec 502.11.2.1.5, for seven days until requested by the engineer for comparison testing. A comparison will be considered favorable when the QA results of a QC retained sample are within the applicable limits specified in Sec 403.18.3.

1.3 **MIX DESIGN.**

- A. The proportions of cement, fine aggregate and coarse aggregate for concrete shall be approved by the engineer within the applicable limits of the specifications for the class of concrete specified in the contract. The contractor shall submit a mixture designed by absolute volume methods or an optimized mix design method such as Shilstone method or other recognized optimization method. Optimized will refer to aggregate gradations that produce lower water demands, as well as improved workability and finishing characteristics. The target and allowable gradation range of each fraction shall be included. The contractor maybe required to submit representative samples of each ingredient to Construction and Materials for laboratory testing.

B. Required Information.

1. The concrete mix design shall contain the following information:
 - a. Source, type and specific gravity of Portland cement
 - b. Source, type (class, grade, etc.) and specific gravity of supplementary materials, if used
 - c. Source, name, type and amount of admixtures

- d. Source, type (formation, etc.), ledge number if applicable, and gradation of the aggregate
- e. Specific gravity and absorption of each fraction in accordance with AASHTO T 85 for coarse aggregate and AASHTO T 84 for fine aggregate, including raw data
- f. Unit Weight of each fraction in accordance with AASHTO T 19
- g. The percent of each aggregate component used for optimized concrete mixes
- h. The design air content and slump
- i. Batch weights of Portland Cement and supplemental cementitious materials
- j. Batch weights of coarse, intermediate and fine aggregates
- k. Batch weight of water

C. Paving Concrete.

- 1. For PCCP mixes, the gradation requirements of Sec 1005 will not apply. For all fractions, 100 percent of each fraction shall pass the 2-inch sieve. When Grade F is required, 100 percent of each fraction shall pass the 3/4-inch sieve.

D. Optimized Masonry Concrete.

- 1. For optimized PCCM mixes, the gradation requirements of Sec 1005.2 and Sec 1005.3 will not apply. For coarse aggregate, 100 percent of each fraction shall pass the one-inch sieve and no more than 2.5 percent shall pass the No. 200 sieve. This value may be increased to 3.0 percent passing, provided there is no more than 1.0 percent of the material passing the No. 200 sieve in the fine aggregate. For fine aggregate, no more than 2.0 percent shall pass the No. 200 sieve for natural sand, and no more than 4.0 percent shall pass the No. 200 sieve for manufactured sand.

E. Non-Optimized Masonry Concrete.

- 1. When optimized aggregate gradations are not selected by the contractor, all provisions, including gradations requirements of Sec 1005 shall apply

F. Fine Aggregate Classes.

- 1. Fine aggregates are grouped into four classes and a minimum cement factor has been established for each class.

G. Cement Factors.

- 1. The minimum cement requirements in pounds per cubic yard of concrete for the various classes of sand shall be as follows:

Cement Requirements ^{a,b}							
Class of Sand	Class A-1 Concrete	Class B Concrete	Class B-1 Concrete	Class B-2 Concrete	Class MB-2 Concrete ^{a,b}	Pavement Concrete	Seal Concrete

A ^e	600	525	610	705	600	560	660
B ^d	640	565	640	735	620	560	695
C ^e	—	585	660	750	640	560	715
D ^f	—	620	695	790	660	560	735

^aWhen used, Type IL, IP, IS or IT cement shall be substituted on a pound for pound basis for Type I cement and adjustments in design mix proportions will be required to correct the volume yield of the mixture.

^bThe contractor may submit an optimized mix design which has a maximum 50 pounds per cubic

yard reduction in cement from that shown in the tables. If the contractor chooses this option, the mixture will be subject to review, laboratory testing and approval by the engineer. All other requirements for the cement factor will apply.

^cClass A sand will include all sand, except manufactured sand, weighing 109 pounds per cubic foot or more.

^dClass B sand will include all chert, river and Crowley Ridge sand weighing from 106 to 108 pounds, inclusive, per cubic foot or glacial sand weighing 108 pounds or less per cubic foot.

^eClass C sand will include all chert, river and Crowley Ridge sand weighing from 101 to 105 pounds, inclusive, per cubic foot.

^fClass D sand will include all sand weighing 100 pounds or less per cubic foot and any manufactured sand that is produced by the process of grinding and pulverizing large particles of aggregate or which contains more than 50 percent of material produced by the reduction of coarser particles. Manufactured sand produced from limestone or dolomite shall not be used in Portland cement concrete for driving surfaces such as bridge decks, pavements and full depth shoulders. Modified B-2 (MB-2) concrete may be used in-place of Class B-2 Concrete.

^gModified B-2 (MB-2) concrete shall use at least one supplementary cementitious material in accordance with this specification. In no case shall MB-2 concrete use less than 15 percent fly ash or GGBFS when used as the individual supplementary cementitious material. In no case shall MB-2 concrete use less than 6 percent metakaolin when used as the individual supplementary cementitious material.

H. Unit Weight.

1. The weight per cubic foot shall be the dry rodded weight per cubic foot of the aggregate, determined in accordance with AASHTO T 19.

I. Compressive Strength Requirements.

1. Concrete classes shall meet the following compressive strength requirements in pounds per square inch:

Minimum Design Compressive Strength ¹						
Class A-1 Concrete	Class B Concrete	Class B-1 Concrete	Class B-2 Concrete	Class MB-2 Concrete	Pavement Concrete	Seal Concrete
6,000	3,000	4,000	4,000	4,000	4,000	3,000

J. Absorptions.

1. Coarse aggregate absorption tolerances shall be in accordance with Sec 502.11.3.3.

1.4 SAMPLING.

- A. Sampling of fresh concrete shall be in accordance with AASHTO R 60, except that for central or truck mixed concrete, the entire sample for slump and air tests and for molding compressive strength specimens may be taken at one time after approximately one cubic yard of concrete has been discharged, instead of at three or more regular intervals during the discharge of the entire batch. Acceptability of the concrete for slump and air content and, if applicable, for strength requirements, will be determined by tests on these samples.

1.5 CONSISTENCY.

- A. The slump of the concrete shall be within the limits for the respective classes of concrete. The concrete shall be uniform in consistency and shall contain the minimum quantity of

water required to produce the designated slump. The slump of concrete mixes will be determined in accordance with AASHTO T 19. The quantity of mixing water in the concrete shall be considered the net quantity after proper allowance has been made for absorption by the aggregate. The slump and mixing water content of the concrete, when placed in the work, shall not exceed the following limits:

Slump and Maximum Water/Cementitious Materials Ratio			
Class of Concrete	Max. Slump, In.	Max. Pounds of Mixing Water Per Pound of Cementitious Materials	
		Air-Entrained	Non-Air-Entrained
A-1	3 1/2	0.46	0.51
B	4	0.51	0.55
B-1	4	0.44	0.53
B-2	3	0.40	----
MB-2	6	0.42	----
Pavement	----	0.50	0.53
Seal	8	---	0.53

1.6 MEASUREMENT OF MATERIAL.

- A. The cement and aggregate for concrete shall be measured by weight. The weights of coarse and fine aggregates to be used will be calculated from the proportions approved by the engineer. Batches that do not contain the proper quantities of material shall be wasted at the contractor's expense.
- B. Weighing Tolerances.
 1. The weighing and batching equipment shall be designed and maintained in such a condition that the material for each batch can be quickly and accurately weighed and shall be operated within a tolerance of plus or minus 0.5 percent for cement and plus or minus 1.0 percent for aggregate. The equipment used for delivery of material to the weigh hoppers shall not permit intermingling of material. Weighing hoppers shall discharge completely and there shall be no accumulation of tare material. Scales shall be accurate to within 0.4 percent of the net load applied. The change in load required to change the position of rest of the indicating element or elements of indicating scales an observable amount shall not be greater than 0.1 percent of the nominal scale capacity. If beam-type scales are used, a separate beam shall be provided for each type of material to be used and means shall be provided for adjustment of tare on a scale separate from those used for other material.
- C. Water Meter Tolerances.
 1. Mixing water shall be measured by volume or by weight. If measured by weight, scales shall be in accordance with Sec 501.6.1. The device for the measurement shall be readily adjustable and under all operating conditions shall measure the required quantity within a tolerance of one quart or one percent, whichever is greater.
- D. Calibration Frequency.
 1. Plant scales and water metering devices shall be calibrated and certified annually and after every plant move by an approved commercial scale service. Admixture metering devices shall be calibrated by a commercial scale company, the admixture

company or the concrete plant company. Plant scales that have not been moved shall be verified six months after their calibration. A copy of the calibration and verification shall be provided to the engineer.

1.7 MIXING.

- A. The mixer shall produce concrete uniform in color, appearance and distribution of the material throughout the mixture. The cement, aggregate and no less than 60 percent of the water shall be mixed a minimum of one minute. The remaining water shall be added within 15 seconds after all other material for the batch is in the mixer. If mixers having multiple compartment drums are used, the time required to transfer material between compartments will be considered mixing time. The speed at which the drum rotates shall be as designated by the manufacturer. If such mixing does not result in uniform and smooth texture concrete, a sufficient number of additional revolutions at the same speed shall be performed until a thorough mixing of each batch of concrete is secured. The mixing time shall be measured from the time all cement, aggregate and 60 percent of the water are in the drum. The volume of concrete mixed in each batch shall not exceed the manufacturer's rated capacity. The mixer shall be equipped to automatically time the mixing of each batch of concrete. If the automatic timing device becomes inoperable, a manual timing device shall be provided to complete the day's operation.

1.8 CENTRAL AND TRUCK MIXED CONCRETE.

- A. The following additional requirements will apply to central and truck mixed concrete.
- B. Mixer Inspection.
 - 1. All central mixers, truck mixers and agitators shall be in accordance with of these specifications prior to use, and inspection of the equipment shall be made periodically during the work. Only equipment found acceptable in every respect and capable of producing uniform results will be permitted.
- C. Uniformity Testing.
 - 1. A uniformity test in accordance with ASTM C 94 Annex A1, shall be performed during the annual calibration at a central mix drum plant and at the beginning of production for a project at a mobile paving plant.
 - a. A uniformity test shall be performed for the largest and smallest proposed batch size.
 - b. The two samples shall be obtained within an elapsed time of no more than 15 minutes. The air content, slump and mix proportions of the concrete tested shall be in accordance with these specifications for that class of concrete or the uniformity tests shall be invalid.
 - c. The use of a one-quarter cubic foot measure will be permitted in determination of weight per cubic foot.
 - d. Cylinders may be cured in damp sand after the first 48 hours.
 - e. The contractor may designate the mixing time for which uniformity tests are to be performed. The mixing time shall be a minimum of 60 seconds. The maximum mixing time shall not exceed the mixing time established by uniformity tests by more than 60 seconds for air-entrained concrete. The mixed concrete shall meet the uniformity requirements specified above before any concrete may be used for pavement or structures. The engineer may allow the

use of the test concrete for appropriate incidental construction. Tests shall be performed by the contractor, in the presence of the engineer. No direct payment will be made for labor, equipment, material or testing. After operational procedures of batching and mixing are thus established, no changes in procedure will be permitted without re-establishing procedures by uniformity tests.

2. Measuring Mixing Time.

- a. Measurement of mixing time shall start at the time all the solid material is in the drum and shall end at the beginning of the next sequential operation.

3. Verification of Mixer.

- a. Mixer performance tests shall be repeated whenever the appearance of the concrete or the coarse aggregate content of samples selected in accordance with ASTM C 94, as modified above, indicates that adequate mixing is not being accomplished.

D. Truck Mixed Concrete.

1. Truck mixed concrete shall be mixed at the proportioning plant and the mixer shall operate at agitating speed while in transit. Truck mixed concrete may be mixed at the point of delivery, provided the cement or cement and mixing water, are added at that point. Mixing of truck mixed concrete shall begin immediately after the introduction of the mixing water and cement to the aggregate or the introduction of the cement to the aggregate.

E. Truck Mixer Requirements.

1. A truck mixer shall consist of a watertight revolving drum suitably mounted, fitted with adequate blades, and equipped with a device for determining the number of mixing revolutions. Truck mixers shall produce a thoroughly mixed and uniform mass of concrete and shall discharge the concrete without segregation. A truck agitator shall consist of a watertight revolving drum or a watertight container suitably mounted and fitted with adequate revolving blades. Truck agitators shall transport and discharge the concrete without segregation. Mixers and agitators shall be cleaned of accumulation of hardened concrete or mortar.

F. Rating Plate.

1. Except as hereinafter permitted, each truck mixer shall have permanently attached to the truck a metal rating plate issued by and in accordance with the capacity requirements of the Truck Mixer Manufacturers Bureau (TMMB), as approved by NRMCA, on which is stated the maximum capacity in terms of volume of mixed concrete for the various uses to which the equipment is applicable. The truck shall also have attached a manufacturer's data plate that shall state the actual capacity as an agitator, and the maximum and minimum mixing and agitating speeds. If truck mixers are used for mixing or agitating, the volume of concrete in each batch shall not exceed the maximum capacity shown on the metal rating plate issued by the TMMB, as approved by NRMCA, except that if a lower capacity for agitating is shown on the manufacturer's data plate, that lower capacity shall govern. The minimum batch size for truck mixers shall be one cubic yard. The engineer may reduce the batch size or

reject use of any truck mixer that does not produce concrete uniform in color, appearance and distribution of material throughout the mass. A quantity of concrete that results in axle and gross loads in excess of statutory limits will not be permitted.

G. Truck Mixing Requirements.

1. Truck mixers and agitators shall be operated at the speed of rotation designated by the manufacturer of the equipment. Truck mixed concrete shall initially be mixed no less than 70 or more than 100 revolutions of the drum at mixing speed after all ingredients, including water, are in the mixer, except that when the batch volume does not exceed 57.5 percent of the gross volume of the drum or 91 percent of the rated maximum capacity, the number of revolutions required for mixing shall be no less than 50 or more than 100. When a truck mixer or truck agitator is used for transporting concrete that has been completely mixed, agitation of the concrete shall continue during transportation at the speed designated by the manufacturer of the equipment as agitating speed. Water may be added to the mixture no more than two times after initial mixing is completed. Each time water is added, the drum shall be turned an additional 30 revolutions, or more if necessary, at mixing speed, until uniform mixing is accomplished. All water added will be included in determining the effective water in the mixture.

H. Water Adjustments at Job Site.

1. Each increment of water added at the job site shall be measured within a tolerance of one percent of the total effective water required for the batch. Water used to wash the drum of the mixer shall not be used as mixing water.

I. Handling and Discharge Requirements.

1. Central or truck mixed concrete shall be delivered to the site of the work and shall meet the following conditions:
 - a. The handling and discharge of concrete shall not cause segregation or damage to the concrete and will allow placement with a minimum of handling. All handling and discharge shall occur prior to initial set of the concrete.
 - b. Truck mixed concrete shall not exceed 300 revolutions after the beginning of mixing.

J. Non-Agitating Equipment.

1. The discharge of concrete transported in non-agitating equipment shall not cause segregation or damage to the concrete and will allow placement with a minimum of handling. All handling and discharge shall occur prior to initial set of the concrete. Bodies of non-agitating hauling equipment shall be smooth, mortar-tight metal containers capable of discharging the concrete at a satisfactory, controlled rate without segregation.

K. Testing Facilities.

1. The contractor shall provide a Type 1 laboratory in accordance with Sec 601 at a paving plant for the engineer to inspect ingredients and processes used in the

manufacture and delivery of the concrete. The contractor shall furnish the necessary equipment and personnel to assist the engineer in obtaining a representative QA sample. The ready mix producer shall notify the designated MoDOT representative every day that concrete is being supplied for a MoDOT project. A daily log of plant production shall be available for the engineer to review.

L. Delivery Tickets.

1. The manufacturer of truck mixed concrete and of central mixed concrete for use in structures shall furnish to the engineer with each truck load of concrete before unloading at the site, a delivery ticket on which is shown information concerning the concrete as follows:
 - a. Name of concrete plant.
 - b. Serial number of the ticket.
 - c. Truck number when a truck mixer is utilized.
 - d. Name of contractor.
 - e. Job Number, route and county designation.
 - f. MoDOT mix identification number assigned to the mix.
 - g. Specific class of concrete.
 - h. Quantity of concrete in cubic yards.
 - i. Date and time when batch was loaded or first mixing of cement and aggregate.
 - j. Number of revolutions, when truck mixed.

M. Concrete Plant Documentation.

1. The contractor shall complete the required concrete plant documentation once per working day at the central ready mix or paving plant. The documentation shall be made available to the engineer within 24 hours after concrete is batched.

1.9 VOLUMETRIC BATCHED AND CONTINUOUS MIXED CONCRETE.

- A. Upon written request by the contractor, the engineer may approve the use of concrete proportioned by volume. If concrete is proportioned by volume, the other requirements of these specifications with the following modifications will apply.
- B. Proportional Devices.
 1. Volume proportioning devices, such as counters, calibrated gate openings or flow meters, shall be available for controlling and determining the quantities of the ingredients discharged. In operation, the entire measuring and dispensing mechanism shall produce the specified proportions of each ingredient.
- C. Controls.
 1. All indicating devices that affect the accuracy of proportioning and mixing of concrete shall be in full view of and near enough to be read by the operator while concrete is being produced. The operator shall have convenient access to all controls.
- D. Calibration.

1. The proportioning devices shall be calibrated by the contractor in the presence of and subject to approval from the engineer. Calibration of the cement and aggregate proportioning devices shall be accomplished by weighing each component. Calibration of the admixture and water proportioning devices shall be accomplished by weight or volume. Tolerances in proportioning the individual components will be as follows:

Item	Tolerance
Cement, Weight percent	0 to +4
Fine Aggregate, Weight percent	± 2
Coarse Aggregate, Weight percent	± 2
Admixtures, Weight or Volume percent	± 3
Water, Weight or Volume Percent	± 1

E. Verification of Yield.

1. Verification of the proportioning devices may be required at any time by the engineer. Verification shall be accomplished as follows. With the cement meter set on zero and all other controls set for the designated mix, the activated mixer shall discharge mixed material into a 1/4 cubic yard container measuring 36 x 36 x 9 inches. When the container is level-struck full, making provisions for settling the material into all corners, the cement meter shall show a discharge equal to the design proportion of cement for 1/4 cubic yard. A tolerance of ± 1/8 inch from the top of the container will be permitted. If the correct yield is not obtained, the proportioning devices shall be adjusted to obtain the design mix or the proportioning devices shall be recalibrated as directed by the engineer.

F. Water Control.

1. The rate of water supplied shall be measured by a calibrated flow meter coordinated with the cement and aggregate feeding mechanism and with the mixer. The rate shall be adjustable in order to control slump at the desired level.

G. Liquid Admixture.

1. Liquid admixtures shall be dispensed through a controlled flow meter. A positive means to observe the continuous flow of material shall be provided. If an admixture requires diluting, the admixture shall be diluted and thoroughly mixed prior to introducing the admixture into the dispenser. When admixtures are diluted, the ratio of dilution and the mixing shall be approved by and performed in the presence of the engineer.

H. Concrete Mixer.

1. The concrete mixer shall be approved by the engineer and shall be an auger-type continuous mixer used in conjunction with volumetric proportioning. The mixer shall produce concrete, uniform in color and appearance, with homogeneous distribution of the material throughout the mixture. Mixing time necessary to produce uniform concrete shall be established by the contractor and shall comply with other

requirements of these specifications. Only equipment found acceptable in every respect and capable of producing uniform results will be permitted.

2. **Material Storage Capacity.**
 - a. The continuous mixer shall be capable of carrying sufficient unmixed dry bulk cement, fine aggregate, coarse aggregate, admixtures and water, in separate compartments to produce no less than 6 cubic yards of concrete at the job site. Each batching or mixing unit or both, shall carry in a prominent place a metal plate or plates on which are plainly marked the gross volume of the unit in terms of mixed concrete, discharge speed and the weight-calibrated constant of the machine in terms of a revolution counter or other output indicator.
 3. **Measurement of Cement.**
 - a. The continuous mixer shall be capable of positive measurement of cement being introduced into the mix. A recording meter visible to the operator and equipped with a ticket printout shall indicate the quantity.
 4. **Measurement of Water.**
 - a. The continuous mixer shall provide positive control of the flow of water and admixtures into the mixing chamber. Water flow shall be indicated by a flow meter and be readily adjustable to provide for minor variations in aggregate moisture. The mixer shall be capable of continuously circulating or mechanically agitating the admixtures.
 5. **Scalping Screen.**
 - a. The continuous mixer shall have a one-inch maximum size scalping screen over the fine aggregate bin to screen out mud balls, conglomerate lumps or any other contaminant material that could interrupt the flow of fine aggregate during proportioning.
 6. **Batching Operations.**
 - a. The continuous mixer shall be capable of being calibrated to automatically proportion and blend all components on a continuous or intermittent basis as required, and shall discharge mixed material through a conventional chute.
- I. **Handling Materials.**
1. Storage facilities for all material shall be designed to permit the engineer to make necessary inspections prior to the batching operations. The facilities shall also permit identification of approved material at all times, and shall be designed to avoid mixing with or contaminating by, unapproved material. Coarse and fine aggregate shall be furnished and handled so variations in the moisture content affecting the uniform consistency of the concrete will be avoided.

1.10 **AIR-ENTRAINED CONCRETE.**

A. Air content for all classifications of concrete shall be determined in accordance with AASHTO T 152. Air-entrained concrete shall be used for the construction of the following items:

1. All retaining walls and bridge units, except culvert-type structures and seal courses\
2. Concrete median barriers.
3. All piles (not required for cast-in-place concrete piles).
4. Concrete pavements.
5. Approach slabs and paved approaches.
6. Concrete medians and median strips.
7. Sidewalks, curb ramps and steps.
8. Curbs, gutters, curb and gutter and surface drain basins and drains.
9. Concrete pedestals for signs, signals and lighting.

B. Other Concrete.

1. All other concrete, except seal concrete, may be air-entrained but only in accordance with the requirements of these specifications.
2. Air Content Limitations.
 - a. When air-entrained concrete is used, the mix design target range for quantity of air content by volume shall not be less than 4.5 percent or greater than 7.5 percent. When field measured air content exceeds 7.5 percent, but is less than or equal to 9.0 percent, the concrete may be placed if allowed by the contractor's quality control plan and at the contractor's risk that all other concrete requirements will be met, including strength. When field measured air content is less than 4.5 percent, the concrete may be re- dosed with air entrainment admixture in accordance with Section 501.10.4. Under no circumstances shall any concrete be incorporated into the work with an air content less than 4.5 percent or greater than 9.0 percent.
3. Incorporation Procedures.
 - a. Air-entraining admixtures shall be added to the concrete during the mixing process. The admixture shall be of such volume and strength that the admixture can be accurately measured and dispensed in accordance with the manufacturer's recommendations. The dispenser shall consistently deliver the required quantity of admixture within a tolerance of ± 3 percent.
4. Re-Dosing.
 - a. When the measured air content is below the minimum specified limit, the contractor will be allowed one attempt per mixer truckload to re-dose the concrete in the field. The contractor shall immediately contact the concrete supplier to make adjustments to all remaining truckloads so they arrive within specifications. If no adjustments are made, re-dosing will not be allowed for subsequent truckloads. The contractor shall obtain approval of the Re-Dosing Plan from the engineer prior to the start of work. The Re- Dosing Plan shall address the following:
 - 1) Field measurement of the air entrainment admixture
 - 2) Brand of air entrainment admixture being used
 - 3) Incorporation and mixing of the air entrainment admixture

4) The use of additional water

1.11 CONCRETE ADMIXTURES FOR RETARDING SET.

- A. If specified in the contract, an approved retarding admixture shall be provided and incorporated into the concrete. If not specified in the contract, the use of an approved retarding admixture will be permitted upon written notification from the contractor. Any retarding admixture shall be added in accordance with Sec 501.10.3 by means of a dispenser conforming to the requirements of that section. No direct payment will be made for furnishing the retarding admixture or for incorporating the admixture into the mixture.

1.12 WATER-REDUCING ADMIXTURES.

- A. Type A water-reducing admixtures may be used in any concrete. When Type A water-reducing admixture is added to pavement concrete for paving purposes, a reduction of cement up to 25 lbs per cubic yard will be permitted. The dosage rate of Type A water-reducing admixture shall be within the ranges recommended by the manufacturer and approved by the engineer. Any cementitious material substitution permitted by specification shall be based on the reduced cement content. Water-reducing admixtures shall be added in accordance with Sec 501.10.3 by means of a dispenser conforming to the requirements of that section. High range water-reducing admixtures may be used when specified or as approved by the engineer.
- B. Modified B-2 Utilized.
 - 1. Modified B-2 concrete shall use a Type A or Type D water-reducer admixture.
- C. Silica Fume and Metakoalin Utilized.
 - 1. Concrete utilizing silica fume or metakaolin shall use a water-reducer admixture that may be added by hand methods. The amount of water contained by the water-reducer admixture shall be included in the overall water content of the concrete.
- D. Consistency Requirement.
 - 1. When a water-reducer admixture is used the maximum allowed slump may be increased to 6 inches for all concrete classes. The concrete shall be homogeneous with no aggregate segregation.

1.13 ACCELERATING ADMIXTURES.

- A. The use of calcium chloride or other approved accelerating admixtures in concrete mixtures will not be permitted, except in concrete used for pavement repair in accordance with Sec 613.
- B. Incorporating Calcium Chloride.
 - 1. Calcium chloride shall be incorporated into the concrete mix in solution form using water. The water used for the solution shall to be accounted for in the approved mix design.

C. Amount of Calcium Chloride.

1. The amount of calcium chloride shall not exceed 2 percent by mass of the cementing material, unless otherwise approved by the engineer.

1.14 **SUPPLEMENTARY CEMENTITIOUS MATERIALS IN CONCRETE.**

A. The contractor may use fly ash, GGBFS, silica fume or metakaolin in the production of concrete in accordance with these specifications. Ternary mixes will be allowed for all concrete classes. Ternary mixes are mixes that contain a combination of Portland cement and two supplementary cementitious materials. Supplementary cementitious materials may be used to replace a maximum of 40 percent of the Portland cement. The amount of each supplementary cementitious materials used in a ternary mix shall not exceed the limits specified herein.

B. Fly Ash.

1. Approved Class C or Class F fly ash may be used to replace a maximum of 25 percent of the Portland cement on a pound for pound basis in all concrete.

C. Ground Granulated Blast Furnace Slag.

1. Approved GGBFS may be used to replace a maximum of 30 percent of the Portland cement on a pound for pound basis in all concrete.

D. Silica Fume.

1. Approved silica fume may be used to replace a percent of the Portland cement on a pound for pound basis. The following limits shall apply when silica fume is used:

Silica Fume Replacement Limits, %		
Class of Concrete	Minimum	Maximum
MB-2	6	8
A-1, B, B-1, B-2, PCCP, Seal	---	8

2. Silica Fume Requirements.

- a. Silica fume shall be approved prior to use and be in accordance with ASTM C 1240, except as noted herein. If dry compacted form, the admixture shall be 100 percent silica fume with no admixtures. Silica fume slurries may contain other approved admixtures, such as water reducers or retarders, if the admixtures are included by the manufacturer of the silica fume admixture.

3. Manufacturer Certification.

- a. The contractor shall furnish to the engineer a manufacturer's certification along with the brand name, batch identification, quantity represented, percent solids and the type, name and quantity of any admixtures, that are provided in the silica fume admixture.

4. Silica Fume Test Results.

- a. The manufacturer's certification shall contain results of recent tests conducted on samples of the silica fume material taken during production or transfer and indicating conformance with Tables 1 and 3 of ASTM C 1240 and this specification. The supplier shall further certify that the material being furnished is in accordance with this specification.

5. Silica Fume Approval.

- a. For approval prior to use, the supplier shall furnish the same information to: Construction and Materials, P.O. Box 270, Jefferson City, MO 65102, along with any requested samples for testing.

6. Silica Fume Slurry.

- a. Liquid silica fume admixture shall be protected from freezing at all times.

7. Admixture Compatibility.

- a. All admixtures used shall be compatible with the silica fume admixture and shall be recommended or approved in writing by the manufacturer of the silica fume admixture.

E. Metakaolin.

- 1. Approved metakaolin may be used to replace a maximum of 15 percent of the Portland cement on a pound for pound basis in all concrete.

2. Metakaolin Requirement.

- a. Metakaolin shall be approved prior to use and be in accordance with AASHTO M321.

3. Manufacturer Certification.

- a. The contractor shall furnish to the engineer a manufacturer's certification along with the brand name, batch identification and quantity represented.
4. Metakaolin Test Results.
 - a. The manufacturer's certification shall contain results of recent tests conducted on samples of the metakaolin taken during production or transfer and indicating conformance with AASHTO M321 and this specification. The supplier shall further certify that the material being furnished is in accordance with this specification.
5. Metakaolin Approval.
 - a. For approval prior to use, the supplier shall furnish the same information to: Construction and Materials, P.O. Box 270, Jefferson City, MO 65102, along with any requested samples for testing.
6. Source Changes.
 - a. Changes in class or source of fly ash, grade and source of GGBFS, brand and source of silica fume or brand and source of metakaolin used in concrete structures will be permitted only with written approval from the engineer. Only fly ash, GGBFS, silica fume or metakaolin resulting in concrete of the same color shall be used in any individual unit of the structure.
7. Mix Proportions.
 - a. When fly ash, GGBFS, silica fume or metakaolin is used, an adjustment in design mix proportions will be required to correct the volume yield of mixture. Approval shall be obtained from the engineer prior to any change in mix design or proportions.
8. Mixing Water.
 - a. Maximum mixing water shall be based on total cementitious material. The quantity of mixing water in the concrete shall be considered the net quantity after proper allowance has been made for absorption by the aggregate.
9. Measuring Fly Ash and Ground Granulated Blast Furnace Slag.
 - a. Fly ash or GGBFS shall be measured in the same manner and with the same accuracy as cement. Fly ash or GGBFS may be weighed separately on the same scale as cement, provided the scale increments are such that the specified weighing accuracy can be maintained. If the fly ash or GGBFS is weighed together with the cement, the cement shall be weighed first and the accuracy shall apply to the combined weight.
10. Measuring Silica Fume and Metakaolin.
 - a. Silica fume or metakolin shall be measured by weight or volume within a tolerance of plus or minus 2 percent.

11. Silica Fume and Metakaolin Batching Sequence.

- a. Silica fume or metakaolin shall be added at the plant at the same point in the batch sequence as recommended by the manufacturer of the material . The silica fume or metakaolin may be added by hand methods.

12. Calculating Silica Fume Solids.

- a. For silica fume solutions, the quantity of liquid silica fume admixture needed to furnish the required silica fume solids shall be calculated based on the weight per gallon and percent solids of the silica fume admixture being used.

13. Measuring Cementitious Materials.

- a. Fly ash, GGBFS, silica fume or metakaolin will be considered as cement when measuring mixing time.

1.15 **COMMERCIAL MIXTURE.**

- A. If specified in the contract that an approved commercial mixture of concrete may be used, the contractor shall notify the engineer in writing, setting out for approval the source and proportions of the mixture proposed to be furnished. The statement shall include the following:

1. The types and sources of aggregate.
2. Type and source of cement and other cementitious material.
3. Scale weights of each aggregate proposed as pounds per cubic yard of concrete.
4. Quantity of water proposed, as pounds or gallons per cubic yard of concrete.
5. Quantity of cement proposed as pounds per cubic yard of concrete.

- B. Minimum Cement Content.

1. The concrete shall contain no less than 517 pounds of cement per cubic yard. The use of fly ash, GGBFS, silica fume or metakaolin shall be in accordance with MoDOT Sec 501.14. The plant shall comply with other requirements of these specifications or be as approved by the engineer. The concrete will be subject to acceptance or rejection by visual inspection at the job site.

- C. Certification.

1. The supplier shall furnish certification with the first truck load of each day's production of concrete that the material and mix proportions used are in accordance with the approved mixture. Upon completion of the work, plant certification shall be furnished by the supplier for the total quantity delivered.

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SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood fence railing

1.3 DEFINITIONS

- A. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
 - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

- D. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

- E. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Comply with indicated fastener patterns where applicable.
 - 2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
 - 3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

END OF SECTION 06 10 00

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SECTION 31 11 00 – CLEARING AND GRUBBING

PART 1 - DESCRIPTION

- A. This work shall consist of clearing, grubbing, removing and disposing of items, debris and other objectionable matter from within the limits of right of way and easement areas, except vegetation designated to remain or to be selectively treated.

PART 2. CONSTRUCTION REQUIREMENTS

2.1 GENERAL.

- A. The engineer will designate all trees, shrubs, plants and other objects that are to remain. All designated items shall be preserved. Any damage to natural terrain, vegetation or objects designated to remain shall be repaired or replaced, as determined by the engineer, at the contractor's expense.

2.2 CLEARING AND GRUBBING

- A. Unless otherwise specified in the contract documents, the entire length of the project shall be cleared and grubbed to the limits and requirements specified. Clearing and grubbing shall include removal of all trees, stumps, roots and any objectionable matter resting on or protruding through the surface of the original ground, except for those items designated to remain.

2.3 CLEARING

- A. The area for clearing shall be within the following limits:
 - 1. Highway construction areas on the right of way or right of way easements, including structures, frontage roads, streets, ramps, approaches, ditches, channels and all other access roads, connections and incidental items that are to be constructed. These areas shall extend 10 feet outside of construction lines, or to the right of way limits if less than 10 feet.
 - 2. Material sites within the right of way or right of way easements.
 - 3. Areas enclosed by interchange loops and ramps.
 - 4. Site distance areas for intersecting routes.

2.4 LIMITS OF GRUBBING

- A. Within the limits of the cut areas, grubbing shall be performed to a minimum depth of 18 inches below the finished earth grade of roadways, ditches, channels, borrows and structures. The areas below the natural ground surface shall be grubbed to a depth necessary to remove all stumps, roots, buried logs and other objectionable material. In embankment areas, undisturbed stumps and roots extending no more than 6 inches above the ground line may remain, provided the stumps and roots are a minimum of 4 feet below the finished earth grade. Except in areas to be excavated, holes created by removals shall be backfilled with suitable material and compacted to the approximate density of the adjacent area.

2.5 SELECTIVE CLEARING AND GRUBBING

- A. All areas outside the limits designated for clearing and grubbing, but on the right of way, shall be free of unsightly vegetation, debris and other objectionable matter. In lieu of grubbing, undisturbed stumps outside the slope stake limits and in mowable areas may be cut to a maximum height of 3 inches above the ground. Low hanging, unsound or unsightly branches on trees or shrubs designated to remain shall be removed as directed by the engineer.

2.6 SCALPING

- A. The contractor shall scalp all areas where excavation or embankment is to be performed, except mowed or burned over sod may remain where the embankment to be constructed is at least 4 feet above natural ground. Scalping shall include the removal of surface material such as sod, grass, residue of agricultural crops, sawdust and any other vegetative matter without removing more earth than is necessary.

2.7 NATIONAL FOREST LAND

- A. Before beginning work on a highway to be constructed over national forest land, the contractor shall obtain information from the forest ranger in charge to determine rules and regulations covering construction procedures and shall follow those requirements. Before any fires are set, the contractor shall notify the forest ranger in charge, and shall secure a burning permit.

2.8 REMOVAL AND DISPOSAL OF MATERIAL

- A. The contractor shall dispose of all trees, stumps, brush, roots and all other objectionable matter removed in the clearing and grubbing process.

2.9 OPEN BURNING

- A. The contractor is encouraged to harvest marketable timber, utilize mulched timber for erosion control and utilize excess mulch for composting. Open burning of trees and other brushy material is allowed unless prohibited elsewhere in the contract or disallowed by federal, state or local laws or ordinances. Any required permits, licenses, fees or other compliance requirements of open burning shall be the responsibility of the contractor in accordance with MoDOT Sec 107. A contractor representative shall be present during all burning. Measures shall be taken to ensure that structures or vegetation on adjacent property, or items designated to remain on the right of way, shall not be jeopardized. Fires set for the purpose of training fire fighters and industrial employees in firefighting methods may be permitted after coordination with MDNR or local fire departments and shall be in strict accordance with NFPA standards.

2.10 DISPOSAL OF WOOD

- A. Burial of stumps and debris will not be permitted on the right of way. Products of clearing and grubbing may be removed from the right of way and disposed of out of sight from the roadway, provided there is no conflict with governing regulations for the wasted material. A signed, written agreement with the property owner shall be submitted by the contractor to the engineer prior to the disposal of material on that property.

2.11 DISPOSAL OF SCALPING

- A. The products of scalping shall be deposited at the toe of embankments where such areas are available within the limits of the roadway balance affected. If such areas are not available, the products shall be neatly and uniformly deposited on the right of way in such a manner that no drainage will be blocked.

2.12 DISPOSAL OF TIMBER

- A. Except in national forest areas, all timber that has not been removed from the right of way prior to construction and is not designated to remain in place shall become the property of the contractor.

2.13 METHOD OF MEASUREMENT

- A. The work provided herein will not be measured for payment, but will be considered a plan quantity. The following exceptions will be made on a measured quantity basis:
 - 1. An authorized change in the line or grade, or appreciable deviations in the original ground elevations in accordance with MoDOT Sec 203.8.1, significantly alters the original construction limits of the contract.
 - 2. Authorized alterations or corrections to the plans provide additional work outside the original construction limits of the contract and will materially affect the final payment quantity.
 - 3. Appreciable errors within the original limits of construction, if the contractor provides written notification, and measurements of the proposed change to the engineer prior to commencing clearing operations. The engineer will accept or reject the changes by the close of the next business day.
- B. If payment for additional work is required, a combined measurement of clearing and grubbing will be made on an area basis to the nearest 1/10 acre . An acre will consist of 87.12 units, each unit being a rectangular area 50 feet long and 10 feet wide.
- C. The total area of the right of way, except that part secured for channel changes, inlet or outlet easements, and borrow areas will be laid out in units beginning at the centerline of the highway with corners at whole or half stations and extending outward until all of the right of way has been included. The total area of the right of way secured for channel changes, inlet or outlet easements, and borrow areas will be laid out in units in the same manner from longitudinal base lines run or designated for these areas.
- D. Clearing and grubbing will be considered as one item. If additional clearing or grubbing is required, the entire unit will be counted for measurement. Areas of mowing or scalping, removal of small trees or brush 5 feet high or less, and all weeds, cornstalks and similar vegetation regardless of height, and the trimming of branches on trees and shrubs designated to remain, will not be measured and will be considered incidental to other required work. Only stumps 3 inches or more in diameter and 6 inches or more above the ground surface in areas where grubbing is required will be considered in the measurement of clearing and grubbing.
- E. If any clearing or grubbing is performed within any unit, the entire area of that unit, except in the case of overlaps, will be included in the measurement. If individual trees or stumps, cause the overlapping of units as laid out, only one unit of clearing and grubbing, as applicable, will be allowed. If a fractional unit occurs as a result of measurement or of

overlap, the fractional unit will be counted as one unit. If the boundary line of any unit intersects a single tree or stump, counting of another applicable unit will not be made if there is any clearing and grubbing to be paid for in the adjacent unit.

2.14 BASIS OF PAYMENT.

- A. Clearing and grubbing will be paid for at the contract unit price based on plan quantity.
- B. If a bid item for clearing and grubbing is not included in the contract, any necessary clearing and grubbing, including scalping, selective clearing and the removal and disposal of all the resulting material required within the contract items specified, will be considered incidental to the contract and additional compensation will not be made.
- C. If additional clearing and grubbing in accordance with MoDOT [Sec 201.3](#) is required outside the initial contract work, payment for that clearing and grubbing will be made per acre at the contract unit price, or if separate payment for clearing and grubbing is not included in the contract, payment will be made in accordance with Sec 109.

END OF SECTION 31 11 00

SECTION 31 20 00 – EARTHWORK

PART 1 - DESCRIPTION

- A. This work shall consist of excavating, disposing of or compacting all material encountered within the limits of the work not being removed under some other item. This work shall be performed in accordance with the specifications and as shown on the plans, or directed by the engineer. All excavation will be classified as hereafter described.

PART 2. CLASSIFICATION OF EXCAVATION

- A. Class A excavation will consist of all roadway and drainage excavation not classified as class c or unclassified. Shale, fire clay, chert broken by intermittent clayey partings or clay seams (joint flint rock), stratified chert cemented with clay seams (hardpan), and plain or bituminous-bound bases or surface courses of macadam, gravel, broken stone or similar material will be considered as class a excavation, not class c excavation.
- B. Class C Excavation will consist of the removal of stone, including sandstone or igneous formations, in ledges 6 inches thick or more. Laboratory analysis will be made, if necessary, to aid in the determination. A ledge will be considered to be a continuous deposit of rock that may or may not include thin, interbedded seams of soft material or shale. The vertical limits of each ledge will be determined by beds of soft material or shale greater than 24 inches thick. The beds of soft material or shale will be included in the measurement of Class A Excavation, unless the material falls within the vertical limits identified by MoDOT Sec 203.8.2.3. Boulders or other detached stones, each having a volume of 2 1/2 cubic yards or more, will be considered Class C Excavation.
- C. Unclassified Excavation will consist of the excavation of all material not classified within the contract.

PART 3. BORROW

- A. Borrow will consist of approved material required for the construction of embankment or for other portions of the work, and shall be obtained either from borrow areas shown on the plans or from areas designated or approved by the engineer. The contractor shall notify the engineer sufficiently in advance of opening any borrow areas so the necessary cross sections or measurements may be taken. Borrow will be classified in the same manner as roadway excavation.
- B. Borrow areas proposed by the contractor, other than those shown on the plans or designated by the engineer, may be approved, provided:
 - 1. The material and area are equally satisfactory.
 - 2. The final cost to the Commission, including the cost of easements, is not greater than the cost as originally designated.
 - 3. The substitution is in the best interest of the Commission.
 - 4. Proper environmental clearances have been obtained for use of any alternate borrow sites, with the exception of permitted quarries and other locations that have already obtained environmental clearances in accordance with MoDOT Sec 203.3.2.5.
 - 5. The contractor has obtained appropriate land disturbance permits from MDNR in advance of excavation, unless the site is already under permit by MDNR.

- C. Proposed sites for contractor furnished material will be sampled and tested only after award of the contract, and after a copy of the written agreement between the property owner and the contractor authorizing use of any borrow site and access has been provided to the engineer. The agreement shall include provisions for the final condition of the borrow site and access.
- D. The preliminary subsurface investigations to determine depth to rock, general soil characteristics, etc., shall be the sole responsibility of the bidder or contractor.
- E. The engineer shall be notified in writing sufficiently in advance of the proposed use of a borrow site to allow six weeks for sampling under the direction of the engineer for testing.
- F. The contractor shall furnish equipment suitable for the purpose of soil sampling, and shall make all necessary arrangements for performing the work at a time mutually agreeable to the contractor and the engineer.
- G. Environmental clearances under applicable federal and state laws and regulations will include, but are not limited to the following: Clean Water Act (COE and MDNR), the Endangered Species Act (USFW and MDC), the National Historic Preservation Act (SHPO), the Farmland Protection Act (NRCS), Resource Conservation and Recovery Act (MDNR), Comprehensive Environmental Response (MDNR), Compensation, and Liability Act (MDNR) and RSMo Chapter 194, Section 194.400 Unmarked Human Burial Sites (SHPO). Certification shall be obtained in advance of the proposed use of a borrow site and furnished to the engineer. Certification shall include clearance letters and other evidence of coordination from the appropriate regulatory agencies as attachments. Guidelines for obtaining environmental clearances for contractor furnished borrow sites may be obtained from the project contact as designated in the contract proposal.
- H. After borrow material has been removed, the borrow site and access shall be finished in accordance with the agreement of the property owner.

PART 4. CONSTRUCTION REQUIREMENTS

4.1 GENERAL

- A. Prior to beginning excavation and embankment operations in any area, all necessary clearing, grubbing and stripping in that area shall have been performed. The excavation and embankment for roadway, intersections and entrances shall be made to the designated alignment, grade and cross section. Sideslopes, cuts and fills shall be finished to a reasonably smooth and uniform surface that will merge with the adjacent terrain without variations readily discernible from the road. Finishing by hand methods will not be required, except that all brush, weeds, excess mud and silt, or other debris shall be removed from culverts and channels within the scope of the work in accordance with Sec 104.11.2, even if such structures are used in place. Areas disturbed by the contractor outside the limits of construction shall be restored at the contractor's expense to a condition similar to that prior to construction operations.

4.2 FIELD STONE

- A. Before final project acceptance, all loose field stone greater than 4 inches in size within the limits of the right of way shall be disposed of as directed by the engineer.

4.3 SHOULDERS

- A. Earth shoulders shall be constructed of suitable material to the grade and cross section shown on the plans and shall be compacted in accordance with MoDOT Sec 203.5. The construction of shoulders shall start when sufficient surfacing has been completed and the surfacing has attained satisfactory strength to permit continuous shouldering operations. Equipment that will damage the surfacing will be prohibited from operating on the surfacing during shouldering operations. Surfacing and curbs shall be protected where equipment is crossing or turning.

4.4 GRADING FOR AGGREGATE TYPE SURFACE ROADWAY

- A. If a roadway to receive an aggregate-type surface is specified in the contract, reasonable tolerance in alignment, grade and cross section will be permitted. A reasonable tolerance in alignment will be defined as a maximum gradual deviation of 2 feet, free from sharp breaks, made in the interest of economy and to take advantage of favorable topography. A reasonable tolerance in grade will be defined as a final grade that is uniform in appearance, free from sharp breaks or humps, and within 6 inches of plan grade if such tolerance results in economy to the Commission. Economy to the Commission will not refer to each individual cut, but to the entire project after due consideration has been given to the need of the material removed from cuts that are below grade and to the compensating feature of cuts that are left above grade. Loose rock on the finished subgrade over 2 inches in size shall be removed, picked up and disposed of as directed by the engineer.

4.5 MAINTENANCE

- A. During construction, the roadway shall be maintained by the contractor in such a condition that the roadway will be passable and well-drained at all times. Roadway ditches, channel changes, inlet and outlet ditches, and any other ditches in connection with the roadway shall be cut and maintained to the required cross section. All drainage work shall be performed in proper sequence with other operations. All ditches and channels shall be kept free of debris or obstructions. All material resulting from slides shall be removed and disposed of as directed by the engineer.

4.6 REMOVAL OF OVERSIZE MATERIAL IN SUBGRADE

- A. The engineer may order the contractor to remove oversize material if the upper 4 inches of the subgrade, as tentatively completed, contains loose rock over 2 inches in size to make the subgrade unacceptable as a roadbed for the proposed type of surfacing in the judgment of the engineer.

4.7 EXCAVATING IN ROCK

- A. Excavating and undergrading in rock, that is material in accordance with the description of Class C, whether the contract calls for classified or unclassified excavation, shall be performed in a manner to produce material of such size as to permit placement in embankments in accordance with the requirements. Rock shall be removed to the limits of undergrading insofar as practical and in such manner as to leave no undrained depressions in the cut. Care shall be taken to avoid overshooting when blasting. Any loose or shattered rock, overhanging ledges and boulders above the roadbed that might dislodge shall be removed. If the contract provides a specific use for rock from roadway excavation, the work shall be performed in such order and manner as may be necessary to ensure that the desired quantity of such material may be placed as required.

4.8 BLASTING REQUIREMENTS

A. Reporting for all blasting shall be made in accordance with Sec 107.7.

1. The contractor shall submit a rock excavation blasting plan to the engineer at least 14 days before drilling operations begin. The blasting plan shall address all trenching, presplitting and production shots, and shall include, but is not limited to the following information: powder factor per cubic yard , hole size, subdrill, stemming depth, drill pattern, type of explosives and detonators, and safety precautions. A preblast survey will be required on all uncontrolled structures within 500 feet of planned blasting operations. A separate blasting plan will be required on all locations requiring blasting within 50 feet of any roadway structure. Any changes to blasting plans shall be provided to the engineer for review prior to performing the work.
2. The contractor shall not exceed blasting holes larger than 4 inches in diameter. The powder factor shall be between 0.60 to 1.35 pounds per cubic yard except for presplitting or trenching. If stemming ejection becomes a problem, crushed stone stemmings shall be used. Subdrill shall be no more than 30 percent of burden. The contractor shall not drill within a radius equal to the depth of the cut of a loaded borehole. Seismic monitoring will be required when the scaled distance is less than 65 , where the scaled distance equals the distance, in feet , divided by the square root of explosive weight, in pounds, per 8-millisecond delay.
3. The contractor shall perform the excavation of rock cuts by the technique of presplitting, cushion blasting or air decking to produce a neat line of the proposed excavation, with the results subject to the approval of the engineer. Holes for presplitting shall be drilled to the full depth of the cut or to a pre-selected bench elevation as shown on the plans or as determined by the engineer. Presplitting shall be done according to accepted practice to produce a clean face on the excavated cut. Presplit shots shall be made prior to production shots. Production holes shall not be drilled any closer to the presplit line than 12 times the diameter of the production blast hole.

4.9 UNDERGRADING

A. Regardless of whether the contract includes paving, the final surface for the backfilled undergraded areas shall be of a uniform texture and grade suitable to the engineer for paving.

1. Unless specified otherwise, the final surface shall be substantially free of exposed rock exceeding the 2 inch size that would interfere with the final preparation of the base for paving. Areas of required undergrading, except where an aggregate-type surface is specified, shall be backfilled with one of the following material, with preference in the order given, depending on availability:
 - a. The top approximately 2 inches of the rock backfill shall consist of either rock fragments or spalls or a 2-inch granular-type material having a plasticity index not exceeding 10, and a gradation such that at least 50 percent of the material will be retained on the No. 4 sieve.
 - b. A 2-inch maximum size granular-type material having a plasticity index not exceeding 10, and a gradation such that at least 50 percent of the material will be retained on the No. 4 sieve.
 - c. A material having a low plasticity index and designated by the engineer as suitable. No material shall exceed 2 inches in size.

B. If a roadway to receive an aggregate type surface is specified in the contract, undergraded areas shall be backfilled with material obtained from roadway excavation, and the upper 6 inches shall be free of granular material larger than 4 inches.

4.10 OVERBREAK

- A. Overbreak resulting from blasting rock below the limits of undergrading shall be removed and backfilled with spalls or rock fragments at the contractor's expense. If spalls are not available and if the contractor does not elect to use rock fragments, the use of either of the following will be satisfactory.
 - 1. Material in accordance with Sec 1007.
 - 2. A granular-type material with a plasticity index not exceeding 10, and a gradation such that at least 50 percent of the material will be retained on the No. 4 sieve.

4.11 UNSUITABLE MATERIAL

- A. Where excavation to the finished graded section results in a subgrade or slopes of unsuitable material, the engineer may require the contractor to remove the unsuitable material, and backfill to the finished graded section with approved material. The contractor shall conduct the operations in such a manner that the engineer may make the necessary measurements before the backfill is placed.

4.12 BORROW

- A. Borrow material shall not be placed until after material from roadway excavation has been placed in the embankment, except as otherwise approved by the engineer. The contractor shall not excavate beyond the dimensions and elevations established, and no material shall be removed prior to staking and cross sectioning the site. If the contractor places more borrow than required, thereby causing a waste of excavation, such waste will be deducted from the borrow volume as measured in the borrow area. All borrow areas shall be bladed and left in such a shape as to permit taking the necessary cross sections after excavating has been completed. The finished borrow areas shall be approximately true to line and grade if so specified in the contract, and shall be finished, where practical, such that no water will collect or stand therein. If it is necessary to remove fencing in order to obtain borrow material, the fencing shall be replaced in as good condition as the fencing was at the time of removal. The contractor shall be responsible for confining livestock when a portion of the fence is removed. Removing and replacing such a fence or the confining of livestock shall be at the contractor's expense.

4.13 ROADWAY OBLITERATION

- A. If obliteration of existing roadways or temporary construction is designated in the contract to be performed on a roadway excavation basis, such obliteration shall include all operations necessary to fill the ditches and blend the old road with the natural ground to provide a pleasing appearance. Removal of concrete pavement and concrete base course will be paid for in accordance with MoDOT Sec 202.30. The earthwork for obliteration, including bituminous surfacing, will be included as roadway excavation.

4.14 HUMAN, CRIMINAL, HISTORICAL, ARCHAEOLOGICAL OR GEOLOGICAL REMAINS

- A. If any human remains, or archaeological artifacts that may be of historical, archaeological or geological significance such as arrowheads, pottery, stone tools, animal bones, or fossils, are encountered during construction, the contractor shall stop all work within a 50-foot buffer around the human remains and/or artifacts, and then shall notify the MoDOT resident engineer or construction inspector. The contractor shall maintain the 50-foot minimum buffer until otherwise directed by the Engineer.

- B. In the case of human remains, MoDOT HP staff will notify the local law enforcement and the State Historic Preservation Office (SHPO) as per state law. If the contractor is unable to contact appropriate MoDOT staff, the contractor shall initiate this involvement by local law enforcement and the SHPO. In this instance, a description of the contractor's actions shall be promptly made to MoDOT.
- C. In the case of archaeological artifacts, MoDOT HP will contact the appropriate staff at the Federal Highway Administration (FHWA) and the SHPO to report the discovery after a preliminary evaluation of the artifacts is made and reasonable efforts to see if the findings represent an archaeological site which can be avoided. If MoDOT determines that the site/artifact is significant and will be adversely affected by the contract work, MoDOT HP will immediately notify the FHWA and SHPO of this finding and provide recommendations to minimize and/or mitigate the adverse effect.
- D. If a temporary suspension of work under this section lasts for an unreasonable period of time, as defined in Sec 108.15.1, and the suspension results in an actual increase in the time or cost of performance of the contract, then this condition will be deemed a suspension of the work directed by the engineer under Sec 108.15 and will be handled in accordance with that section.

4.15 EXCAVATED MATERIAL STOCKPILE

- A. During the process of excavating cuts, the engineer may order specific excavated material placed in stockpiles in order to have suitable material available to complete the upper portion of embankments and to backfill portions of undergraded cuts.

4.16 EMBANKMENT CONSTRUCTION

- A. Embankment construction shall consist of constructing roadway embankments, including preparation of the area upon which the embankment is to be placed, constructing dikes and berms, placing and compacting approved material within roadway areas where unsuitable material has been removed, and placing and compacting embankment material in holes, pits and other depressions within the roadway area. Only approved material free of trees, stumps, rubbish and any other deleterious material shall be used in the construction of embankments and backfills. Rocks, broken concrete or other solid material shall not be placed in embankment areas where piling is to be placed or driven.
- B. Embankments requiring surcharges, restricted loading rates, embankment control stakes or pore pressure measurement devices shall be constructed to the design template progressively for the full height. Failure of embankments or embankment foundations, or damage to structures that occurs when the contractor fails to observe restricted loading rates, or fails to construct slopes initially to the design template shall be repaired as directed by the engineer at the contractor's expense.
- C. Construction of embankments shall not be started on foundation soil or partially completed embankments having more than 0.2 foot of frozen soil, nor shall embankment be built of frozen material. Frozen soil layers in partially completed embankments shall be at least 18 inches apart. No material shall be placed on frozen soil layers encountered within 12 inches of the top of the proposed grading section. Frozen material on foundation soil or partially completed embankment not meeting the above requirements shall be removed before placing material for the embankment. The removal of frozen material from the foundation of an embankment or from any layer of the embankment and the replacement with satisfactory material shall be at the contractor's expense.

4.17 EMBANKMENT ON HILLSIDES OR AGAINST EXISTING EMBANKMENT

- A. Where embankment is to be placed on hillsides or where new embankment is to be constructed against existing embankments, existing slopes steeper than six horizontal to one vertical measured at a right angle to the roadway shall be continuously benched in no less than 12-inch rises over those areas as required, as the work is brought up in layers. Benching shall be of sufficient width to permit placing and compacting operations. Each horizontal cut shall begin at the intersection of the ground line and the vertical side of the previous bench. Existing slopes shall also be stepped to prevent any wedging action of the embankment against structures. The material thus cut out or compacted along with the new embankment material will be at the contractor's expense.

4.18 SCALPING

- A. Scalping shall be performed in accordance with MoDOT Sec 201.2.3. Where an embankment less than 4 feet high is to be constructed, all sod and vegetative material shall be removed from the surface upon which the embankment is to be placed, and the cleared surface completely broken up by plowing, scarifying or stepping to a minimum depth of 6 inches. This area shall be compacted in the same manner as that required for the embankment placed on the area. Sod not requiring removal shall be thoroughly disked before construction of embankment. Where an embankment less than 3 feet high is to be constructed over a compacted road surface containing bituminous or granular material, the old road surface shall be scarified to a depth of at least 6 inches. This scarified material shall be recompacted.

4.19 EMBANKMENT AGAINST EXISTING STRUCTURES

- A. If embankment is deposited on one side only of abutments, wingwalls, piers or culvert headwalls, care shall be taken that the area immediately adjacent to the structure is not compacted to the extent that the compaction will cause overturning of or excessive pressure against the structure. Equipment of such weight as may cause damage to culverts or other structures will not be permitted to work over or immediately adjacent to such structures. The embankment adjacent to the end bent of a bridge shall not be placed higher behind than in front of end bents until the superstructure is in place. If embankment is to be placed on both sides of a concrete wall or box-type structure, operations shall be conducted such that the embankment is kept at approximately the same elevation on each side.

4.20 SURCHARGED EMBANKMENTS

- A. Surcharged embankments shall be built in accordance with the plans and shall remain in place for such time as in accordance with the contract. The requirements for placing and compacting will be waived on the surcharge material above the specified compacted area.

4.21 EXCESS OR UNSUITABLE MATERIAL

All excess or unsuitable excavated material, including rock and boulders that cannot be used in embankments, may be placed on the sideslopes of the nearest embankment in a satisfactory manner or shall be disposed of off the right of way in areas secured by the contractor. The contractor shall be responsible for compliance with all federal, state and local laws in the disposal of excess or unsuitable material. Rock or boulders greater than 24 inches shall not be used routinely in constructing sideslope embankments. A distinct shoulder line shall be maintained by keeping all such waste material at least 24 inches below the finished shoulder elevation, and specific density control will not be required.

4.22 PLACEMENT OF EMBANKMENT

- A. Roadway embankment shall be placed in layers not exceeding 8 inches, an uncompacted measurement, and shall be compacted as specified before the next layer is placed. The layers shall be placed approximately parallel to both the proposed profile grade and to the finished roadbed. Effective spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting. Continuous leveling and manipulating will be required during compacting operations. Construction equipment shall be routed uniformly over the entire surface of each layer. Occasional rocks and boulders greater than 24 inches shall be dispersed to allow for uniform compaction between them.
- B. Occasional stones or rock fragments exceeding the thickness of the 8-inch layer shall be disposed of by being incorporated into the embankment outside the limits of the proposed surfaced traffic lanes. The thickness of the layer in these areas may be increased if necessary to accommodate the stones, but shall not exceed 12 inches, an uncompacted measurement. The stones or rock fragments shall be placed such that there is no nesting.
- C. Lifts may be increased to a maximum of 12 inches, an uncompacted measurement, for berms, filling of old channels, waste or similar areas, and any roadway or approach for which a granular-type surface is proposed. These areas shall be compacted by uniformly distributing all equipment movements over the entire area, and specific density control will not be required. Compaction performed in these areas will be at the contractor's expense.

4.23 ROCK EMBANKMENT

- A. If the excavated material consists predominantly of rock fragments of such a size that the material cannot be placed in layers of the prescribed thickness, such material shall be placed in the embankment in layers having a thickness of the approximate average size of the larger rocks but not exceeding 24 inches. Rocks or boulders too large to permit placing in a 24-inch layer shall be reduced in size as necessary to permit this placement. Rock shall not be dumped in place, but shall be distributed by blading or dozing in a manner to ensure proper placement in final position in the embankment. Construction equipment shall be routed uniformly over the entire surface of each layer. The spalls and smaller stone fragments shall be left on the surface of each layer as formed.

4.24 RIGID OR FLEXIBLE PAVEMENTS

- A. If the specified or proposed surfacing consists of a rigid or flexible-type pavement, the top consolidated rock layer for the full width between roadbed slopes shall be finished to the same limits as shown on the plans for undergrading in rock cuts. If rigid pavement is to be constructed without an aggregate base, the material requirements of MoDOT Sec 203.4.4.2.1 (a) or (b) shall govern the construction of the area between the bottom of the pavement and the top of the top consolidated rock layer. Any embankment necessary outside the limits of the pavement shall be constructed of suitable earth or as otherwise specified in the contract.

PART 5. COMPACTION OF EMBANKMENT AND TREATMENT OF CUT AREAS WITH MOISTURE AND DENSITY CONTROL

- A. AASHTO T 99, Method C, replacing any material retained on a 3/4-inch sieve, as provided therein, or MoDOT Test Method TM 40 will be used as the Standard Compaction Test for determining the moisture density relations of soils. The optimum moisture as determined by the Standard Compaction Test may be used as a guide in determining the proper moisture

content at which each soil type should be compacted. Water shall be added or removed as necessary to permit obtaining the required density and moisture control. The field density of the embankment after compaction will be determined in accordance with AASHTO T 191 or T 205, using the total material or T 310, for wet density. The volume of the test hole may be reduced as necessary to accommodate available testing equipment. If nuclear density methods are used, moisture content will be determined in accordance with AASHTO T 239, except that a moisture correction factor will be determined for each soil in accordance with MoDOT Test Method TM 35. The calculated density obtained in a field density test will be compared with the maximum density as directed by the Standard Compaction Test to determine the percent of compaction attained.

5.2 MAXIMUM DENSITY COMPACTION REQUIREMENTS

- A. If payment of Compacting Embankment or Embankment in Place is specified as a contract pay item, compaction to at least 90 percent of maximum density, as determined by the Standard Compaction Test, will be required in the following areas:
1. All roadway embankments except as otherwise provided in the following MoDOT sections: Secs 203.4.14, 203.4.15, 203.4.16.2, 203.5.3, 203.5.4, 203.5.5 and 203.5.7
 2. All backfilled undergraded cuts, except as modified by Sec 203.5.3.
 3. Certain portions of the roadbed in cuts specified in Sec 203.5.8, except as modified in Sec 203.5.3.

5.3 MOISTURE CONTROL

- A. The moisture content of the soil at the time of compaction shall be as specified herein.
- B. When necessary to eliminate a rubbery condition of the embankment, it may be required that some soils have a moisture content below the optimum during compacting work, except that Class A material having a liquid limit of 40 or more, when placed in embankments within 5 feet of the top of the finished subgrade or where encountered in areas of cut compaction, shall be compacted at no less than the optimum moisture content. The liquid limit determination will be in accordance with AASHTO T 89. Some Class A material, including heavy clays and material commonly known as shales and fireclays, shall require breaking down such that the moisture can be uniformly distributed.
- C. Loessial soils shall have moisture controlled so as not to exceed optimum plus 3 percentage points when placed in embankments less than 30 feet high. When placed in embankments 30 feet high or more, such soils shall have moisture controlled such that the optimum moisture is not exceeded. If wet foundation conditions contribute to the embankment moisture while compacting, the engineer may waive this specified moisture content for a height not to exceed 3 feet above the embankment foundation. In the event of conflict of provisions of this section with provisions in MoDOT Sec 203.5.2.1, Sec 203.5.2.1 shall govern.

5.4 TOP LIFT THICKNESSES

- A. The upper 18 inches of the earth subgrade extending the full width between roadbed slopes shall be compacted to at least 95 percent of maximum density.

5.5 STRUCTURE APPROACH

- A. Roadway embankment within 100 feet of each end of a structure on which the top slab or deck is to be used as the riding surface and the spill fill under such a structure shall be compacted to no less than 95 percent of maximum density.

5.6 ROCKY FILL

- A. Density requirements will not apply to portions of embankments constructed of material so rocky that the embankment cannot be satisfactorily tested in accordance with AASHTO T 191 or T 205. Material of a gradation having more than approximately 20 percent retained on a 3/4-inch sieve will generally be considered too rocky for satisfactory density testing. In lieu thereof, the compactive effort on rocky material shall consist of making four complete passes on each layer with a tamping-type roller or two complete passes on each layer with a vibratory roller. The tamping-type roller shall have tampers or feet protruding no less than 6 inches from the surface of the drum and shall have a minimum load on each tamper of 250 psi of tamping area. The vibratory roller shall have a manufacturer's rating of 16 to 20 tons compacting power. During compaction, each layer shall have the moisture content controlled such that, in the judgment of the engineer, any silt and clay fraction is in a plastic state. Simple diagnostic tests to establish such a plastic state will include ability to indent with a thumb or heel or to roll a short thread of soil between the hands. Material that crumbles under pressure will be considered too dry.

5.7 LIFT CONSISTENCY

- A. Each layer shall be wetted or dried as necessary, and shall be compacted to the required density. Regardless of the type of equipment used, the roadway shall be compacted uniformly and the surface kept reasonably smooth at all times. If large pieces of heavy clay are encountered, the material shall be broken down by suitable manipulation to permit satisfactory embankment construction. If shale is encountered, the shale shall be broken down as much as practical and compacted at or above optimum moisture.

5.8 DEEP FILLS

- A. Compaction to at least 95 percent of maximum density will be required for that portion of any embankment below an elevation 50 feet below the top of the finished subgrade. If, because of embankment foundation conditions, the 95 percent maximum density cannot be obtained after reasonable compactive effort has been expended, the engineer may waive the 95 percent requirement for a height not exceeding 3 feet above the embankment foundation.

5.9 COMPACTING IN CUT

- A. Cut compaction shall be performed in all Class A material areas and in all unclassified material areas that meet the requirements of MoDOT Sec 203.2.2 after removal of the roadway excavation material to the required section. A surface parallel to the pavement slope, 12 inches below the bottom of the pavement or lowest base course, shall be temporarily exposed for the full width between roadway inslopes. The exposed material shall be manipulated and compacted to no less than the required density to a depth of 6 inches. The material above this compacted plane shall be spread in layers not exceeding 8-inch loose thickness, each layer being wetted or dried as necessary and compacted to the specified density. The entire volume of material so handled and compacted, including the 6-inch layer compacted in place, will be considered as Compacting in Cut. All Class A material having a liquid limit of 40 or more, including the 6-inch layer compacted in place, shall be compacted at no less than the optimum moisture content.

- B. Cut compaction shall be performed to an additional depth of 12 inches for 50 feet on each side of the intersection of the natural ground and the top of the subgrade, then uniformly graded for 30 feet to meet the depth requirements of Sec 203.5.8 and, if necessary, Sec 203.5.8.2.
- C. The existing ground for the full width between roadway slopes under embankments less than 18 inches high shall be treated in accordance with Sec 203.5.8 to only such depth as to ensure having 18 inches of material of the required density and moisture below the top of the finished subgrade.

5.10 FIELD LABORATORY

- A. When authorized by the engineer, the contractor shall provide a Type 2 field laboratory in accordance with Sec 601.

PART 6. COMPACTION OF EMBANKMENT NOT CONSTRUCTED WITH DENSITY OR MOISTURE AND DENSITY CONTROL

- A. If compaction of embankment is a requirement of the contract but has not been specified as a pay item, the compactive effort on each layer shall consist of distributing all equipment movements over the entire embankment area and of at least three complete passes with a tamping-type roller over the entire area to be compacted. The tamping-type roller shall have tampers or feet projecting no less than 6 inches from the surface of the drum and shall have a minimum load on each tamper of 250 psi of tamping area. Compactive efforts shall be continued, if necessary, until the tamping feet penetrate no more than 2 inches into the layer of material being compacted. Continuous leveling and manipulating will be required during compacting operations and the moisture content shall be adjusted as necessary, in the judgment of the engineer, to permit proper consolidation.
- B. Dumping and rolling areas shall be kept separate, and no lift shall be covered by another until compaction complying with these requirements has been attained. Unstable areas in the embankment shall be removed and replaced with suitable material at the contractor's expense.
- C. Each layer of embankment constructed of rock or rocky material shall also be compacted by three complete passes of the tamping-type roller. A vibratory roller may be used if approved by the engineer.

PART 7. COMPACTION OF EMBANKMENT WITHOUT SPECIFIED COMPACTION RESULTS OR SPECIFIED COMPACTION EQUIPMENT

- A. If compaction of embankment is not designated by the contract, compaction will not be required other than that attained by distributing equipment movements over the entire embankment area.

PART 8. METHOD OF MEASUREMENT

8.1 CONTRACT QUANTITY PAYMENT

- A. The quantities of excavation, compacting embankment, and embankment in place for which payment will be made will be those shown in the contract for the various items, provided the project is constructed essentially to the lines and grades shown on the plans. A partial

check of existing ground elevations will be made at the time slope stakes are set, and of the finished work for deviations in the grade, width or slope from the authorized grade or typical section.

- B. Final measurement will not be made of Class A Excavation, Unclassified Excavation, Compacting Embankment, and Embankment in Place except when:
1. Appreciable errors are found in the original computations.
 2. An original cross section is found to have an average deviation from the true elevation in excess of one foot.
 3. An authorized change in grade, slope or typical section is made.
 4. Unauthorized deviations decrease the quantities on the plans.
 5. Class C excavation is encountered, unless the contract calls for unclassified excavation. If this condition is encountered, corrections or revisions will be computed and added to or deducted from the contract quantity.
 6. Quantities are determined by measurement as specified in MoDOT Sec 203.8.2.
- C. If the plans have been altered or when disagreement exists between the contractor and the engineer as to the accuracy of the plan quantities of any balance, or the entire project, either party has the right to request a recomputation of contract quantities of excavation within any area by written notice to the other party. The written notice will contain evidence that an error exists in the original groundline elevation or in the original computations that will materially affect the final payment quantity. If such final measurement will be required, measurement will be made from the latest available ground surface and the design section.

8.2 MEASURED QUANTITIES

- A. If payment of excavation is to be made on a measured quantity basis, volumes of authorized excavation will be computed from cross section measurements by the average end area method. When not attributable to carelessness of the contractor, slides in Class A Excavation and in Unclassified Excavation will be included in such measurements. Authorized excavation of rock, shale, muck or other unsuitable material will also be included.
- B. Authorized excavation of rock, shale, muck or other unsuitable material below grade shall consist of that excavation necessary to provide the designated depth of undergrading. No measurement or payment will be made of any material removed and replaced below the design limits of undergrading. No measurement will be made for overbreak or for the disposal of the same if such material is obtained from outside the neat lines of the proposed backslopes in rock excavation, except that such overbreak will be measured as Class A Excavation or Unclassified Excavation, as applicable, when all suitable authorized excavation has been used and the overbreak material will be required for completion of the embankment. A maximum tolerance of one foot will be permitted for rock protruding or extending within the neat lines of the proposed backslopes.
- C. While work involving classified excavation is in progress, the engineer will fix points of elevation and stationing as required to establish the lines of demarcation between material of different classification. These top points will be determined before any Class C, sandstone or igneous rock excavation is removed, and the contractor shall notify the engineer before removing any such material. Any excavation removed before the engineer has been notified and given 24 hours to establish lines of demarcation will be included in the measurement of Class A Excavation only.

- D. Excavation may be encountered in which lines of demarcation between material of different classifications are impractical to establish. The quantity of material classified as other than Class A Excavation may be determined by the engineer on a percentage basis as the work progresses after the limits of determinate classification material have been established. Where vertical or near vertical excavation limits are indicated by the plans, all Class A Excavation material encountered within the actual Class C vertical excavation limits will be included with Class C Excavation quantities.
- E. Measured quantities of excavation will be used where the ground elevations shown on the plans are found to be erroneous. No revision of contract quantities will be made if the actual ground elevations are considered to agree generally with the ground line shown on the plans. Where the engineer authorizes a change in grade, slope or typical section affecting the volume of excavation allowed for payment in that particular balance or area, the revised volume will be determined by the average end area method on the basis of the revised grade, slope or typical section. Where unauthorized deviations result in a decrease in the contract quantities, the deviations will be measured and deducted from the contract quantity.
- F. The quantity of Class C Excavation will be computed on a measured quantity basis. The volume of Class A Excavation allowed for payment in roadway balances involving rock excavation will be determined by one of the following methods, whichever in the judgment of the engineer is more applicable:
1. Measuring and computing both the Class A Excavation and the Class C Excavation within the limits affected or as defined by Sec 203.8.2.3.
 2. Deducting the volume of Class C, sandstone or igneous rock excavation from the total adjusted volume of roadway excavation, regardless of classification, within the limits affected or as defined by Sec 203.8.2.3.
- G. Measurement will be made for unsuitable material actually excavated and removed to permit proper compaction in cut sections and in foundations for embankment sections. No measurement will be made of the suitable material temporarily removed and replaced to facilitate compaction in cuts or under shallow embankments.
- H. Borrow quantities will be determined by measuring the borrow area before and after excavating.
- I. Excavated material stockpiled in accordance with Sec 203.4.9 will be measured in the stockpile by the average end area method.
- J. Only that material placed in accordance with Sec 203.5 will be included in the measurement of Compacting Embankment and Embankment in Place. If an error has been found in the original computations or ground elevations, or if there has been an authorized change in grade, slope or typical section, the plan quantity for Compacting Embankment and Embankment in Place for those areas or balances affected will be adjusted for final payment. All required compaction above the original ground line and all compacting of material placed in undergraded cut sections will be considered as Compacting Embankment and Embankment in Place.
- K. Compacting in cuts will be measured to the nearest 1/10 station along the centerline of each roadbed regardless of width, and will include any required compaction of the original ground under shallow embankments. For the purpose of measurement, a divided highway will be considered as having two roadbeds. Measurement of ramps will be made from or to

the ramp's gore point. Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

- L. Measurement of roadway and drainage excavation, compacting embankments and embankments in place will be made to the nearest cubic yard .

8.3 BASIS OF PAYMENT

- A. Roadway and drainage excavation will be paid for at the contract unit price per cubic yard and will be considered full compensation for the following:
 - 1. Excavating.
 - 2. Hauling any distance.
 - 3. Placing and forming embankments.
 - 4. Preparation of subgrade.
 - 5. Shouldering, rounding slopes, obliterating existing roadbeds or temporary construction, finishing of graded earth roadway, picking up and disposing of field stone and other rock.
 - 6. Disposal of excess excavation.
 - 7. Any work noted on the plans to be included in the contract unit price for excavation.
- B. No payment will be made for any material used for purposes other than those designated, except as approved by the engineer.
- C. Payment will be made at the contract unit price per cubic yard for the applicable item of Class A Excavation or Unclassified Excavation for each handling of stockpiled excavation approved by the engineer.
- D. No payment will be made for rock overbreak or for backfilling overbreak areas below the undergrading limits. Payment for the material for backfilling required undergraded areas will be made under an applicable excavation item. No direct payment will be made for backfilling around structures, the excavation for which has been paid for as roadway excavation.
- E. If the contract does not contain a contract unit price for Class C Excavation and such material is encountered during construction, unless the project is let on an unclassified excavation basis, payment will be
- F. made per cubic yard at the fixed contract unit price specified in Sec 109, except that payment will be determined in accordance with Sec 109.4 when the quantity exceeds 500 cubic yards.
- G. No direct payment will be made for water required in compaction work. Any costs involved in reducing the moisture content in soils will be at the contractor's expense.
- H. Payment for finishing a graded earth roadway will be considered completely covered by the contract unit price for the various classes of excavation except as otherwise specifically

noted under Sec 104.11.2 in regard to material excavated in cleaning channels and culverts used in place.

- I. When removal of unsuitable material is directed by the engineer, the contractor will be reimbursed for excavation of the unsuitable material and the excavation of the suitable replacement material. Payment will be made for each operation at the contract unit price of Class A Excavation or Unclassified Excavation. Payment for placement of the suitable material will be paid for at the contract unit price of Compacting Embankment.

- J. Embankment in Place will be paid for at the contract unit price per cubic yard, and will be considered full compensation for:
 - 1. Furnishing and transporting material from stockpile sites or from a contractor-provided source.
 - 2. Placing and forming embankments.
 - 3. Compacting embankment or for adding or reducing the water content of the embankment.
 - 4. Any excavation required to provide the embankment material included under the item of embankment in place, including mulching and seeding a borrow site.
 - 5. Any work noted on the plans to be included in the contract unit price for embankment in place.

- K. Payment will be made at the contract unit price for each of the pay items included in the contract.

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SECTION 31 25 00 – EROSION CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION.

- A. This work shall consist of furnishing, installing, maintaining and removing temporary pollution, erosion and sediment control measures; furnishing and placing permanent erosion control features; or a combination of both as shown on the plans or as directed by the engineer.

1.2 SCHEDULE OF WORK.

- A. Prior to the preconstruction conference and the start of construction, the contractor shall submit schedules for the implementation of temporary pollution control and temporary and permanent erosion control work, as applicable, for construction operations. The contractor's schedule shall address specifically the pollution and erosion control measures planned at all streams or other bodies of water. No work shall start until the pollution and erosion control schedules and methods of operations have been approved by the engineer. Any delay of the work resulting from failure to submit acceptable pollution and erosion control schedules and methods of operations will be considered nonexcusable.

1.3 MATERIAL.

- A. All material shall be in accordance with MoDOT Division 1000, Material Details, and specifically as herein.

1.4 CONSTRUCTION REQUIREMENTS.

- A. The engineer will limit the surface area of erodible earth material exposed by clearing and grubbing or by excavation, borrow and fill operations in accordance with the following. The engineer may direct the contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other bodies of water. Such work may involve the construction of temporary berms, dikes, dams, sediment basins and slope drains, and use of temporary mulches, seeding or other control devices or methods as necessary to control erosion and pollution.
 1. If erosion and sediment control measures, as shown on the plans, are not suitable due to site conditions, a suitable system of Best Management Practices (BMP) as defined by the applicable Missouri State Operating Permit for land disturbance activities and the Stormwater Pollution Prevention Plan (SWPPP), shall be applied as approved by the engineer.
 2. The contractor shall exercise effective management practices throughout the life of the project to control pollution. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage or other harmful material shall not be discharged on or from the project. Temporary pollution control measures, such as storage and handling of petroleum products and other pollutants, shall be coordinated with temporary and permanent erosion and sediment control features specified in the contract to ensure economical, effective and continuous erosion and pollution control. These requirements will also apply to work within easements designated by the Commission.

- B. The contractor shall incorporate all permanent erosion, sediment, and pollution control features into the project at the earliest practical time. Temporary measures shall be used to correct conditions that develop during construction which were not foreseen during the design stage, that are needed prior to installation of permanent pollution control features, or that are needed temporarily to control erosion and sediment that develops during normal construction practices, but are not associated with permanent control features on the project.
- C. Installation of temporary control measures shall be scheduled to coincide with clearing and grubbing operations, but before grading operations begin. The project land area disturbance shall not exceed one acre without installation of erosion and sediment controls. The total project land disturbance area shall not exceed 20 acres without written approval from the engineer.
- D. The engineer may allow additional land disturbance acreage if appropriate BMP's including temporary seeding and mulching, have been applied to previously disturbed areas and the contractor has the resources to apply the BMP's to the expanded area.
- E. Unless otherwise provided or approved in writing by the engineer, construction operations in streams or other bodies of water shall be restricted to those areas that must be entered for the construction of temporary or permanent structures. Streams or other bodies of water shall be promptly cleared of all falsework, piling, debris or other obstructions placed therein or caused by construction operations.
- F. Fording of streams or other bodies of water with construction equipment will not be permitted, except as allowed by the engineer. Temporary bridges or other structures shall be used when frequent crossing of streams or other bodies of water is necessary. Unless otherwise approved in writing by the engineer, mechanized equipment shall not be operated in streams or other bodies of water except as may be required to construct channel changes and temporary or permanent structures. If a Corps of Engineer Section 404 or Department of Natural Resources Section 401 permit is applicable for a project, the permit requirements and conditions will prevail.
- G. The contractor shall obtain all necessary permits for all project support activities located off the project site. Project support activities include, but are not limited to, borrow areas, waste areas, plant sites, and staging areas. All costs associated with the permits and pollution control shall be at the contractor's expense, including providing, installing, maintaining, and removal of all erosion and sediment control devices, and final stabilization of disturbed areas.
- H. In the event of conflict between these requirements and the pollution control laws, rules or regulations of other federal, state or local agencies, the more restrictive laws, rules or regulations will apply.
- I. The contractor is encouraged to incorporate mulch from the clearing and grubbing operation into the BMP's on the project. BMP's may consist of compost filled socks, compost filter berms, soil protection cover or any other method as approved by the engineer.
- J. Unless otherwise specified, or directed by the engineer, all temporary erosion and sediment control measures shall be removed by the contractor after permanent erosion and sediment control measures are established and the project has achieved final stabilization as defined in the SWPPP. Biodegradable erosion and sediment control

materials may be allowed to be incorporated into the project in accordance with the SWPPP, as approved by the engineer. Rock from ditch checks and other temporary sediment devices may be repositioned to serve as ditch liner in accordance with the SWPPP, and as directed by the engineer.

- K. Portland cement concrete residue and wash water and other operations that produce sediment laden runoff shall be managed by an appropriate control measure.
 - 1. Portland cement concrete residue and wash water shall be discharged into a plastic lined pit, plastic lined straw bale enclosure, or other commercially available water tight enclosure suitable for containing concrete residue and wash water as approved by the Engineer.
 - 2. Water from aggregate washing and other operations that produce sediment laden water shall be treated by filtration, settling basins, or other means sufficient to comply with the general water quality criteria established by MDNR.
 - 3. No direct payment will be made for the design, installation, maintenance or removal of controls necessary to contain Portland cement concrete residue and wash water or other water from

PART 2. TEMPORARY BERMS

2.1 DESCRIPTION.

- A. This work shall consist of constructing and maintaining temporary berms at the top of slopes or transverse to the centerline of fills as shown on the plans.

2.2 MATERIAL.

- A. Type B berms shall consist of graded material from within the project limits, rock, or other suitable material approved by the engineer. Type C berms shall consist of rock with a predominant size between 4 inches and 12 inches.

2.3 CONSTRUCTION REQUIREMENTS.

- A. Temporary berms shall be constructed and maintained to the approximate dimensions shown on the plans.

2.4 TYPE B BERMS.

- A. Type B berms shall be machine compacted with a minimum of three passes over the entire width of the berm. Material removed from Type B berms shall be incorporated in the embankment when possible. The contractor shall remove and dispose of any excess or unsuitable material to a location approved by the engineer.
- B. Type B berms shall drain to a compacted outlet at slope drain. On transverse berms, the top width of the berms may be wider and the side slopes flatter to allow equipment to pass over these berms with minimal disruption.

2.5 TYPE C BERMS.

- A. Vegetative mulch, erosion control blanket or geotextile fabric shall be placed on the upslope of the Type C berm. The vegetative mulch shall be placed in such a manner that the final

compacted thickness is 2 inches. The material for the vegetative mulch shall be in accordance with MoDOT Sec 802. The straw layer erosion control blanket or geotextile fabric shall be removed and replaced as directed by the engineer.

2.6 METHOD OF MEASUREMENT.

- A. Measurement of Type B and C berms will be made to the nearest linear foot.

2.7 BASIS OF PAYMENT.

- A. The accepted quantities of Type B and C berms will be paid for at the contract unit price and will be considered full compensation for material, installation, maintenance, removal and any other hand work necessary to construct the berms. No payment will be made for the straw layer, erosion control blanket or geotextile fabric on the Type C berm. No payment will be made for any seeding and mulching needed after removal.

PART 3. TEMPORARY SLOPE DRAINS

- A. **Description.** This work shall consist of furnishing, constructing maintaining and removing temporary slope drains to carry water down slopes and to reduce erosion. The method selected shall be approved by the engineer prior to construction.
- B. **Construction Requirements.** The contractor shall provide temporary, impermeable slope drains to carry water or water with suspended solids down fill slopes until permanent erosion control measures are established. The contractor shall provide temporary slope drains on fillslopes at approximately 500-foot intervals or as directed by the engineer. All temporary slope drains shall be adequately anchored to the slope to prevent disruption of flow. The inlet ends shall include a ditch check and be constructed to channel water into the temporary slope drain. Outlet ends shall have some means of dissipating the energy of the water to reduce erosion downstream and have the ability to capture sediment. After removal, the contractor shall restore the site of the slope drains to the satisfaction of the engineer.
- C. **Method of Measurement.** Measurement of temporary slope drains will be made to the nearest linear foot.
- D. **Basis of Payment.** The accepted quantities of temporary slope drains will be paid for at the contract unit price. Payment shall include furnishing, constructing, maintaining and removing temporary slope drains, and restoration of the slope drain sites. No payment will be made for any seeding and mulching needed after removal.

PART 4. TEMPORARY DITCH AND INLET CHECKS

4.1 DESCRIPTION.

- A. This work shall consist of furnishing, constructing, maintaining, removing and disposing of temporary ditch and inlet checks.

4.2 CONSTRUCTION REQUIREMENTS.

- A. **Rock Ditch Checks.** Rock ditch checks shall be constructed in accordance with the plans, or as directed by the engineer, and shall have a minimum effective height of 18 inches. The predominant size of the rock used shall range between 4 inches and 12 inches.
- B. **Alternate Ditch Checks.** Alternate ditch checks shall be constructed in accordance with the manufacturer's specifications, and as shown on the plans, or as directed by the engineer. Alternate ditch checks shall have a minimum effective height of 9 inches, shall follow guidance provided in the SWPPP, and shall perform to the level that meets or exceeds the requirement of the current Missouri Operating Permit.
 - 1. Unless otherwise disallowed, the contractor has the option to construct rock ditch checks in lieu of alternate ditch checks. Rock ditch checks constructed in lieu of alternate checks shall have a minimum effective height of 18 inches. Spacing shall be increased, as determined by the engineer, to account for the additional height of rock ditch check. The toe-to-top capacity requirements shown on the plans will be used to determine the spacing.
- C. **Inlet Checks.** Inlet checks shall be installed in accordance with the plans or as directed by the engineer to prevent sediment from entering drop inlets, manholes, and other openings to culverts and closed drainage systems.
 - 1. Inlet checks shall be constructed in accordance with MoDOT Sec 806.30.2.1, rock ditch checks, and shall completely surround the inlet or other structure, as indicated on the plans. Other allowable methods of protecting inlets will be listed in the SWPPP.
- D. **Curb Inlet Checks.** Curb inlet checks shall consist of socks filled with rock, or other fillers of sufficient weight to keep the device in place. Curb inlet checks shall be installed in the gutter or as shown on the plans. Other proprietary devices may be used, as approved by the engineer.

4.3 MAINTENANCE.

- A. The contractor shall monitor the condition of all temporary checks and repair or replace checks that are not functional. The contractor shall remove sediment in accordance with Sec 806.110. Alternate ditch checks shall be maintained in accordance with this provision and the manufacturer's specifications or as directed by the engineer.

4.4 REMOVAL.

- A. All types of temporary checks shall remain in service until removal has been approved by the engineer. Removal shall be in accordance with Sec 806.4.11 and as stated herein. The contractor shall remove any sediment from the check, remove the check, and restore the area to match existing ground condition. When necessary, seeding and mulching shall be in accordance with Secs 802 and 805 respectively, and shall be considered incidental.

4.5 METHOD OF MEASUREMENT

- A. Measurement of rock ditch checks will be made to the nearest linear foot as measured along the top of the check. Rock ditch checks constructed in lieu of alternate checks will be included in this measurement for payment. Inlet checks, except for curb inlet checks, will be included in this measurement for payment.

- B. Measurement of alternate ditch checks will be made to the nearest linear foot as measured along the top of the check.
- C. No measurement will be made for any portion of a check that exceeds the length necessary to adequately span the ditch as shown on the plans or as directed by the engineer.
- D. Measurement of curb inlet checks will be made per each check.

4.6 BASIS OF PAYMENT.

- A. The accepted quantities of rock ditch checks, alternate ditch checks, inlet checks, and curb inlet checks will be paid for at the contract unit price for each pay item included in the contract. If the engineer determines unusual conditions warrant complete replacement of a check, payment will be made for the replacement check at the contract unit price.
- B. Payment for sediment removal shall be in accordance with Sec 806.110.

PART 5. TEMPORARY SEEDING

5.1 DESCRIPTION.

- A. This work shall consist of furnishing and applying fertilizer and seed in disturbed areas authorized by the engineer. Mulch shall be applied following temporary seeding in accordance with MoDOT Sec 802. Temporary seeding and mulching is utilized to provide interim stabilization of disturbed areas where staging requires the area to be disturbed again at a later date, and for areas to be seeded with warm season grasses that are finish-graded, but application of permanent seeding is disallowed per Sec 805.3.1.2. Finish grading will not be required except for areas that will not receive further grading prior to permanent seeding. Hydraulic seeding and fertilizing in accordance with Sec 805 will be permitted.

5.2 CONSTRUCTION REQUIREMENTS.

- A. Seeding and mulching shall be a continuous operation on all cut and fillslopes, excess material sites and borrow pits during the construction process. All disturbed areas shall be seeded and mulched as necessary to control erosion in accordance with the Missouri State Operating Permit. Seed bed shall be prepared in accordance with MoDOT Sec 801. When the engineer allows the contractor to disturb additional ground beyond the restrictions in Sec 806.4.4 solely to enhance the contractor's operation, the contractor shall not receive compensation for temporary seed or mulch, as required by the engineer, for ground cover for areas exceeding the restrictions in Sec 806.4.4.
 1. The contractor shall provide permanent seeding and mulching following temporary seeding in accordance with Sec 805. Any preparation of the seed bed that might be necessary prior to permanent seeding to ensure germination shall be considered incidental to temporary seeding. All washouts and rills shall be repaired at the contractor's expense prior to permanent seeding.
 2. Temporary seeding mixtures of cereal grains shall be applied at a minimum rate of 100 pounds per acre. All erodible seeded areas shall provide a minimum of 20 plants of the species planted per square foot on at least two random counts per acre in representative areas of the field. For areas with a large percentage of rock, the number of living plants shall be proportional to the percentage of erodible surface, as

determined by the engineer. The counts will be conducted 60 days after the species is planted.

3. Fertilizer shall be applied at a rate of 40 pounds nitrogen (N) per acre.
4. Lime will not be required for temporary seeding of unfinished areas. In finished areas, where temporary seeding is placed due to warm season grass planting time restrictions, 100 percent of the lime specified for warm season grasses shall be applied at the time of temporary seeding.

5.3 METHOD OF MEASUREMENT.

- A. Measurement of temporary seeding areas will be made to the nearest tenth of an acre.

5.4 BASIS OF PAYMENT.

- A. The accepted quantities of temporary seeding will be paid for at the contract unit price per acre. Payment for fertilizer shall be included in the cost of temporary seeding. When lime is applied in accordance with Sec 806.50.2.4 upon request from the contractor, payment for the lime application will be made as a partial payment for Seeding - Warm Season Grasses. The remaining payment for Seeding - Warm Season Grasses will be made after permanent seeding is complete.

PART 6. SEDIMENT TRAP

6.1 DESCRIPTION.

- A. This work shall consist of constructing, maintaining and removing sediment traps as shown on the plans or as directed by the engineer.

6.2 CONSTRUCTION REQUIREMENTS.

- A. Sediment traps shall be constructed as shown on the plans or as directed by the engineer. Traps may require excavation, or placement of rock of sufficient size to impound water, or a combination of excavation and placement of rock.
- B. Sediment traps shall be installed with clearing and grubbing operations or as directed by the engineer. The contractor shall monitor sediment levels and remove sediment in accordance with Sec 806.110.
- C. Sediment traps shall remain in service until removal has been approved by the engineer. Removal shall be in accordance with Sec 806.4.11 and as stated herein. The contractor shall remove any sediment from the trap, backfill, compact all excavations, restore the area to match existing ground condition, and seeding and mulching in accordance with Secs 802 and 805 respectively.

6.3 METHOD OF MEASUREMENT.

- A. Measurement of excavation to construct sediment traps will be made to the nearest tenth of a cubic yard.
- B. Measurement of rock placed to construct sediment traps will be made to the nearest tenth of a cubic yard.

6.4 BASIS OF PAYMENT.

- A. The accepted quantity for excavation to construct sediment traps will be paid for at the contract unit price. Payment includes clearing, excavation, removal, backfilling, and final grading.
- B. The accepted quantity for rock used to construct sediment traps will be paid for at the contract unit price. Payment shall include furnishing, placing, and removal of rock.
- C. No direct payment will be made for seeding and mulching necessary to restore the area after removal.
- D. Payment for sediment removal will be in accordance with Sec 806.110.

PART 7. SILT FENCE

7.1 DESCRIPTION.

- A. This work shall consist of furnishing, installing, maintaining, and removing of a silt fence to control sediment along slopes and other designated areas. The quantity of silt fence shown on the plans may be increased or decreased, as directed by the engineer. The engineer may also modify the location as necessary to improve the effectiveness of the silt fence. Variations in quantity and location will not be considered as a change in work.

7.2 MATERIAL.

- A. When geotextile fabric is used, material shall be in accordance with MoDOT Sec 1011. All other material shall be as specified in the SWPPP.
 - 1. **Posts.** Wood, steel or synthetic posts may be used. Posts shall be of sufficient length, but no less than 4 feet, to ensure adequate embedment while fully supporting the fence and shall have sufficient strength to resist damage during installation and to support applied loads while in service.
 - 2. **Prefabricated Fence.** Prefabricated fence systems may be used if the systems meet all of the above material requirements.

7.3 CONSTRUCTION AND MAINTENANCE REQUIREMENTS.

- A. **Fabric Fence.** The contractor shall install silt fence as shown on the plans and at other locations directed by the engineer. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading. Fabric at the bottom of the fence shall be buried a minimum of 6 inches to prevent flow under the barrier. The trench shall be backfilled, and the soil compacted over the fabric. Fabric splices with a minimum 2- foot overlay shall be located only at a support post. Any installation method acceptable to the engineer will be allowed as long as the effectiveness and intent of the silt fence is achieved.
 - 1. Post spacing shall not exceed 5 feet. Posts shall be driven a sufficient depth into the ground or placed on closer spacing as necessary to ensure adequate resistance to applied loads.
 - 2. The silt fence shall be fastened securely to the upslope side of the post. When wire support fence is used, the wire shall extend into the trench a minimum of 2 inches.

- B. **Alternate Fence Types.** Alternate silt fence types shall be in accordance with the SWPPP or as approved by the engineer.
- C. **Maintenance.** The contractor shall monitor the condition of all fences and repair or replace fences that are not functional as long as the fences are necessary to contain sediment runoff. Any deficiencies shall be corrected by the contractor in accordance with the SWPPP. In addition, the contractor shall review the effectiveness of silt fences in areas where construction activities have changed the natural contour and drainage runoff. Where deficiencies exist, additional silt fences shall be installed as approved or directed by the engineer.
- D. **Sediment.** The contractor shall remove and dispose of sediment in accordance with Sec 806.110. Segments of silt fence that receive heavy sediment loading may require a secondary silt fence or installation of other controls to adequately contain sediment.
- E. **Removal.** Silt fence shall be removed in accordance with Sec 806.4.11 and as specified herein. The contractor shall remove and dispose of any excess silt accumulation along the fence, shall restore the area to match existing ground condition, and seeding and mulching in accordance with Secs 802 and 805 respectively.

7.4 **METHOD OF MEASUREMENT.**

- A. Silt fence will be measured to the nearest linear foot from end to end of each separate installation.

7.5 **BASIS OF PAYMENT.**

- A. The accepted quantities of silt fence will be paid for at the contract unit price.
- B. No direct payment will be made for seeding and mulching necessary to restore the area after removal.
- C. Payment for sediment removal will be in accordance with Sec 806.110.

PART 8. TEMPORARY PIPE

- A. **Description.** This work shall consist of installing and removing temporary pipe utilized to carry water under temporary roadways, silt fences, berms or other locations determined by the engineer and to prevent the contractor's equipment from coming in direct contact with water when crossing an active stream, intermittent streams created during heavy rainfalls or other bodies of water.
- B. **Material.** Any pipe approved by the engineer may be used.
- C. **Construction Requirements.** Installation of temporary pipe shall be in accordance with the specifications for permanent pipe and shall prevent water from causing erosion around the pipe. All backfill material for pipes shall be placed in 6-inch lifts and mechanically compacted. Compaction tests will not be required. Temporary pipe placed in intermittent or active streams shall be backfilled with clean rock of sufficient size to withstand normal stream flows.

- D. **Method of Measurement.** Measurement of temporary pipe will be made to the nearest linear foot for those pipes specified on the plans.
- E. **Basis of Payment.** The accepted quantities of temporary pipe will be paid for at the contract unit price for temporary pipes specified on the plans. No payment will be made for temporary pipes that the contractor chooses to install to facilitate construction. Unless provided as a pay item in the contract documents, no direct payment will be made for the placement and removal of the backfill material or rock.

PART 9. EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS

9.1 DESCRIPTION.

- A. This work shall consist of furnishing and placing erosion control blankets (ECBs) and turf reinforcement mats (TRMs) on slopes or ditches for short-term or long-term protection of seeded areas at locations shown on the plans or as directed by the engineer.

9.2 MATERIAL.

- A. ECBs and TRMs shall be used as designated in the contract or as approved by the engineer. The contractor shall provide ECBs and TRMs of the type specified in the contract and shall provide a manufacturer's certification stating that they are in accordance with Sec 1011.

9.3 CONSTRUCTION REQUIREMENTS.

- A. ECBs and TRMs shall be installed and maintained according to the manufacturer's recommendations.

9.4 METHOD OF MEASUREMENT.

- A. Measurement of ECBs and TRMs will be made to the nearest square yard of surface area covered.

9.5 BASIS OF PAYMENT.

- A. The accepted quantity of ECBs and TRMs will be paid for at the contract unit price for each of the pay items included in the contract. If ECBs and TRMs are used in lieu of other erosion control measures, payment will be made at the contract unit price for the pay items in the contract for the respective items that the blanket replaces.

PART 10. TEMPORARY STREAM CROSSING

10.1 DESCRIPTION.

- A. This work shall consist of constructing a temporary stream crossing to facilitate the movement of equipment across a stream.

10.2 CONSTRUCTION REQUIREMENTS.

- A. The contractor shall be responsible for the design, installation, maintenance and removal of the temporary stream crossing and any structures installed for the construction of the temporary stream crossing. Appropriate measures shall be taken to maintain near normal downstream flows and to minimize flooding upstream. The temporary stream crossing shall be constructed to permit the free movement of the stream's aquatic life. Fill material shall be clean rock of sufficient size to withstand expected high flows. Only graded rock and/or quarry-run rock shall be used. The rock must be reasonably well graded, with no particle dimension greater than approximately 12 inches, and no particle dimension less than approximately 9 inches. Gravel and dirt should not exceed 15% of the total fill volume.
- B. Prior to construction of the temporary stream crossing, all information shall be submitted to the engineer to ensure that it meets the terms and conditions of the Corps of Engineer permit. The contractor shall not begin construction on any temporary stream crossing without written permission from the engineer.
- C. All approaches to the temporary stream crossing shall be maintained such that all storm water runoff is diverted to retention devices.
- D. When the temporary stream crossing is no longer needed, the crossing shall be removed as soon as possible and the area shall be restored to pre-project conditions or to the satisfaction of the engineer.

10.3 BASIS OF PAYMENT.

- A. No direct payment will be made for the design, installation, maintenance or removal of temporary stream crossings. The contractor shall be responsible for all costs, including damage and penalties.

PART 11. SEDIMENT REMOVAL

11.1 DESCRIPTION.

- A. This work shall consist of removing and disposing of sediment from sediment control devices, such as ditch and inlet checks, sediment basins, sediment traps, silt fence, and other devices that accumulate sediment.

11.2 CONSTRUCTION REQUIREMENTS.

- A. The contractor shall monitor sediment levels in all sediment control devices and remove sediment prior to the level reaching approximately one-half the design heights for checks and fences, and one-half the storage capacities for basins and traps. The engineer may require sediment removal from devices prior to levels reaching the specified limits.
- B. The contractor shall dispose of the sediment in a location that does not allow the sediment to erode back into the sediment devices or to pollute streams or other bodies of water.

11.3 METHOD OF MEASUREMENT.

- A. Measurement of sediment removal will be made to the nearest tenth of a cubic yard.
- B. No measurement will be made for sediment removal that accumulates due to the contractor's failure to complete erosion control measures in accordance with the SWPPP or

as directed by the engineer. The engineer shall determine the volume of sediment that will be excluded from payment due to a lack of required erosion control measures.

- C. No measurement will be made for removing any remaining sediment during final removal of the sediment control devices.

11.4 **BASIS OF PAYMENT.**

- A. The accepted quantity of sediment removal will be paid for at the contract unit price.

END OF SECTION 31 25 00

SECTION 31 32 19 – GEOTEXTILE

PART 1 - GENERAL

1.1 SCOPE.

- A. This specification covers geotextile for use in subsurface drainage, sediment control and erosion control, or as a permeable separator.

1.2 ACCEPTANCE.

- A. Acceptance of the material will be based on the manufacturer's certification and upon the results of such tests as may be performed by the engineer.

1.3 MATERIAL.

- A. Geotextiles shall be in accordance with the physical and chemical requirements of AASHTO M 288 for the specified application, except as modified in this specification.

1.4 SUBSURFACE DRAINAGE GEOTEXTILE.

- A. Subsurface drainage geotextile shall be used in subsurface drainage as a filter to protect drainage media from clogging with fines from adjacent soil. Typical applications include the lining of drainage trenches and the wrapping of drainpipes.
- B. The minimum permittivity shall be 1.0 sec-1.
 - 1. The material shall be AASHTO Class 2.
- C. **Temporary Silt Fence Geotextile.** Temporary silt fence geotextile shall be used in supported or non-supported sediment control fencing.
- D. **Permanent Erosion Control Geotextile.** Permanent erosion control geotextile shall be used when the erosion control measure will not be removed, such as erosion control of slopes and channels when placed under a rock blanket, rock ditch liner, etc.
 - 1. The minimum permittivity shall be 1.0 sec-1.
 - 2. The material shall be either AASHTO Class 1 or Class 2.
- E. **Separation Geotextile.** Separation geotextile shall be used as a separation material to prevent mixing of dissimilar material, and to control migration of backfill material through joints in structural elements.
 - 1. The minimum permittivity shall be 1.0 sec-1.
 - 2. The material shall be AASHTO Class 1.

1.5 EROSION CONTROL BLANKETS.

- A. Erosion control blankets (ECB) shall be categorized based on performance testing for the C-factor by ASTM D6459 and physical testing for the minimum tensile strength by ASTM D5035. Erosion control blankets shall meet the following requirements.

ECB Type	Description	Material Composition	Longevity	Max Slope	C-factor	Minimum Tensile Strength
1.A	Mulch Control Nets	A photodegradable synthetic mesh or woven biodegradable natural fiber netting	3 months	5:1	≤ 0.10 @ 5:1	5 lb/ft
1.B	Netless Rolled Erosion Control Blankets	Natural and/or polymer fibers mechanically interlocked and/or chemically adhered together to form an RECP	3 Months	4:1	≤ 0.10 @ 4:1	5 lb/ft
1.C	Light-Weight Double-Net Erosion Control Blankets	Natural and/or polymer fibers mechanically bound together by two rapidly degrading, synthetic or natural fiber netting	3 months	3:1	≤ 0.15 @ 3:1	50 lb/ft
1.D	Heavy Double-Net Erosion Control Blankets	Processed degradable natural and/or polymer fibers mechanically bound together between two rapidly degrading, synthetic or natural fiber nettings	3 months	2:1	≤ 0.20 @ 2:1	75 lb/ft
	Control Blankets					
2.A	Mulch Control Nets	A photodegradable synthetic mesh or woven biodegradable natural fiber netting	12 months	5:1	≤ 0.10 @ 5:1	5 lb/ft
2.B	Netless Rolled Erosion Control	Natural and/or polymer fibers mechanically interlocked and/or chemically adhered together to form an RECP	12 months	4:1	≤ 0.10 @ 4:1	5 lb/ft
2.C	Light-Weight Double-Net Erosion Control Blankets	Natural and/or polymer fibers mechanically bound together by two degrading, synthetic or natural fiber netting	12 months	3:1	≤ 0.15 @ 3:1	50 lb/ft
2.D	Heavy Double-Net Erosion Control Blankets	Processed degradable natural and/or polymer fibers mechanically bound together between two degrading, synthetic or natural fiber netting	12 months	2:1	≤ 0.20 @ 2:1	75 lb/ft
3.A	Mulch Control Nets	A slow degrading synthetic mesh or woven natural fiber netting	24 months	5:1	≤ 0.10 @ 5:1	25 lb/ft
3.B	Erosion Control Blankets	An erosion control blanket composed of processed slow degrading natural or polymer fibers mechanically bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix	24 months	1.5:1	≤ 0.25 @ 1.5:1	100 lb/ft
4	Erosion Control Blankets	An erosion control blanket composed of processed slow degrading natural or polymer fibers mechanically bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix	36 months	1:1	≤ 0.25 @ 1:1	125 lb/ft

- B. **Anchors.** Anchors as recommended by the erosion control product manufacturer shall be used.

- C. **Test Methods.**

1. ASTM D6459 testing shall be performed on loam soil. The calculated C-factor for the tested slope shall be determined from the reported C-factor regression equation using an erosivity value of 224. Type 1.A, Type 2.A, and Type 3.A mulch control nets must be tested in conjunction with pre-applied mulch material. Minimum tensile strength shall be tested in accordance with ASTM D5035 in the machine direction.
2. Texas Department of Transportation and the Texas Transportation Institute testing for product acceptance on 3:1 or 2:1 sand may be substituted for acceptance of ASTM D6459 on loam soil.

D. Pre-Qualification List:

1. Prior to use, the manufacturer shall furnish a manufacturer's certification to the Construction and Materials division stating the name of the manufacturer, the chemical composition of the filaments or yarns and certifying that the material supplied is in accordance with this specification. The certification shall include recent results of tests for all specified requirements. Final acceptance of erosion control blankets will be based on certification and field performance.

- E. Acceptance.** Final acceptance of erosion control blankets will be based on the erosion control blankets being utilized as pre-qualified and actual field performance.

1.6 TURF REINFORCEMENT MATS. TURF REINFORCEMENT MATS (TRM) SHALL BE CERTIFIED BY THE MANUFACTURER FOR OPEN FLOW CHANNELS AND SHALL MEET THE FOLLOWING CALCULATED SHEAR STRESS:

TRM TYPE	CALCULATED SHEAR STRESS (LBS/FT ²)
TYPE 1	3.5-6
TYPE 2	6.1-8
TYPE 3	8.1-10
TYPE 4	10.1 OR GREATER

- A. Anchors.** Anchors as recommended by the product manufacturer shall be used.

1. **Test Methods.** Turf reinforcement mats tested and evaluated by either ASTM D6460 or by the Texas Department of Transportation and Texas Transportation Institute independent testing. The test results must indicate the maximum allowable shear strength. ASTM D6460 shall be tested on the loam soil.
2. **Pre-Qualification List:** Prior to use, the manufacturer shall furnish a manufacturer's certification to the Construction and Materials division stating the name of the manufacturer, the chemical composition of the filaments or yarns and certifying that the material supplied is in accordance with this specification. The certification shall include recent results of tests for all specified requirements. Final acceptance of turf reinforcement mat will be based on certification and field performance.
3. **Acceptance.** Final acceptance of turf reinforcement mats will be will be based on the turf reinforcement mat being utilized as pre-qualified and actual field performance.

1.7 UNBONDED CONCRETE OVERLAY INTERLAYER. UNBONDED CONCRETE OVERLAY INTERLAYERS SHALL HAVE THE FOLLOWING MATERIAL PROPERTIES:

Property	Requirement	Test Method
Fabric Type	Non-woven Geotextile	
Mass per unit area	Min. 14.8 oz/sq.yd	ASTM D 5261
Thickness under load (pressure)	0.29 psi: ≥ 0.12 in 2.9 psi: ≥ 0.10 in 29 psi: ≥ 0.04 in	ASTM D 5199, modified under loads of 0.29, 2.9, and 29 psi
Tensile strength	≥ 685 lb/ft	ASTM D 4595
Maximum elongation	$\leq 130\%$	ASTM D 4595
Water permeability in normal direction under load (pressure)	$\geq 3.3 \times 10^{-4}$ ft/s [under pressure of 2.9 psi]	ASTM D 5493
Water permeability in the plane direction of the fabric (transmittivity) under load (pressure)	$\geq 1.6 \times 10^{-3}$ ft/s [under pressure of 2.9 psi] $\geq 6.6 \times 10^{-4}$ ft/s [under pressure of 29 psi]	ASTM D 6574
Weather resistance	Resistance $\geq 60\%$	EN 12224
Alkali resistance	$\geq 96\%$ Polypropylene/Polylethylene	

1.8 CERTIFICATION.

- A. The contractor shall furnish a manufacturer's certification to the engineer for each lot of material furnished stating the name of the manufacturer, the chemical composition of the filaments or yarns and certifying that the material supplied is in accordance with this specification. The certification shall include or have attached typical results of tests from specific lots for all specified requirements.

END OF SECTION 31 32 19

SECTION 31 37 00 – RIP RAP

PART 1. ROCK BLANKET

1.1 DESCRIPTION.

- A. This work shall consist of constructing a protective blanket of rock or broken concrete on slopes or stream banks.

1.2 MATERIAL

- A. The material for rock blanket shall be durable stone or broken concrete containing a combined total of no more than 10 percent of soil, sand, shale or non-durable rock. The material shall contain a large percentage of pieces as large as the thickness of the blanket will permit, with enough smaller pieces of various sizes to fill the larger voids. For Type 1 Rock Blanket, at least 40 percent of the mass shall be of pieces having a volume of one cubic foot or more. For Type 2 Rock Blanket, at least 60 percent of the mass shall be of pieces having a volume of one cubic foot or more. Acceptance of quality and size of material will be made by visual inspection at the job site.

1.3 CONSTRUCTION REQUIREMENTS.

- A. A trench at the toe of the slope shall be excavated to the depth shown on the plans, or to a depth of 2 feet if not otherwise shown. The slopes shall be in accordance with the proper cross section and shall be compacted to a uniform density as required for adjacent material. The rock or broken concrete shall be placed on the slope, to the specified thickness, elevation and extent, and manipulated such that most of the flat sides are in contact, thereby eliminating large voids. The finished surface of the blanket shall present an appearance free from segregation and with a proportionate quantity of the larger pieces showing.

1.4 METHOD OF MEASUREMENT.

- A. Measurement will be made to the nearest cubic yard of material in place in the completed blanket.

1.5 BASIS OF PAYMENT.

- A. If shown on the plans that the material for rock blanket is to be obtained from the right of way or other source furnished by the Commission, the excavating, including all breaking, loading and hauling, regardless of distance to the site of the rock blanket, will be paid for and considered completely covered under such contract items as Class A Excavation, Class C Excavation, Unclassified Excavation, Excavation for Structures, or other applicable items. If payment is made under these conditions, separate payment for furnishing rock blanket will not be made.

1. If the plans show material for rock blanket to be secured from such sources and this material is made unsuitable or unattainable by the contractor's operations, the

contractor shall provide suitable material and dispose of any surplus material at the contractor's expense.

2. If the plans provide for obtaining material from the right of way or other source furnished by the Commission, but all or part of the required quantity of acceptable material is not actually available, payment will be made under MoDOT Sec 109 for the purchase and delivery of any additional rock blanket material that will be required.

B. If the plans do not provide for a source of the material, the contractor shall provide the material, and all costs of securing the source, quarrying, excavating, breaking and hauling the material to the site will be paid for and completely covered by the contract unit price per cubic yard for furnishing rock blanket. If material suitable for rock blanket is encountered within the limits of the right of way or other sources furnished by the Commission, and the material is used in the construction of the rock blanket, then payment will be made in accordance with MoDOT Sec 611.30.5.1.

C. Payment for placing rock blanket will be made at the contract unit price per cubic yard. No direct payment will be made for excavating the trench or for backfilling.

END OF SECTION 31 37 00

SECTION 32 13 13 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. All concrete paving shall be in accordance with 2022 Missouri Standard Specifications for Highway Construction. Refer to Divisions 500 and 600. See attached relevant sections in Appendix.
- B. Fiber Reinforced Concrete where shown on the plans shall meet the requirements of Class B-1 or Pavement concrete with the addition of Fiber Mesh Reinforcement as detailed in this specification.

PART 2 - PRODUCTS

2.1 FIBER MESH REINFORCEMENT

- A. Fiber reinforcements shall comply with material specifications and performance requirements set forth in ASTM C1116, for Type III Synthetic-Fiber Reinforced Concrete, and as follows.
 - 1. Synthetic reinforcing fibers shall be 100 percent virgin polypropylene fibrillated fibers containing no reprocessed olefin materials.
 - 2. Fibers shall have a specific gravity of 0.9, a minimum tensile strength of 70 ksi, graded per manufacturer, and be specifically manufactured to an optimum gradation for use as a concrete reinforcement.
 - 3. Provide a minimum of 1.5 pounds fiber reinforcement per cubic yard of concrete. Fibers shall be added at the batch plant.
 - 4. Refer to Plans for locations of fiber mesh reinforcement.

END OF SECTION 32 13 13

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SECTION 32 92 00 – TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY OF WORK

- A. Work shall include all labor, materials, and equipment necessary to completely furnish and install the Turf and Grasses as indicated on the plans and as herein specified.
- B. This section includes the following:
 - 1. Seeding
 - 2. Hydroseeding
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 31 Section “Erosion and Sediment Control Systems” for erosion control materials
 - 2. Division 31 Section “Site Clearing” for topsoil stripping and stockpiling
 - 3. Division 31 Section “Earthwork” for excavation, filling and backfilling, and rough grading

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Pesticides and Herbicides: Include product label and manufacturer’s application instruction specific to this project.
- B. Certification of Grass Seed: From seed vender for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Included year of production and date of packaging.
 - 1. Certification of each seed mixture for turf grass sod and seed. Include identification of source, name and telephone number of supplier.
- C. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of manicured turf grass and native meadow grass during a calendar year. Submit before expiration of required initial maintenance periods.
- D. Qualification Data: For qualified landscape Installer.
- E. Material Test Reports: For existing native surface topsoil, existing in-place surface soil and imported or manufactured topsoil.
- F. Product Certificates: For fertilizers from manufacturer.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
 - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association
 - 2. Experience: Five (5) years' experience in turf installation
 - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project Site when work is in progress
 - 4. Pesticide Applicator: State licensed, commercial.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened container showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver Sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.
- C. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge or soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery or bulk fertilizer and soil amendments with appropriate certificates.

1.6 PROJECT CONDITIONS

- A. Proceed with and complete seeding work as rapidly as portions of site become available, working within seasonal limitations.
- B. Protect existing utilities, paving, plant material, and other facilities from damage caused by seeding operations.
- C. Perform seeding work only after planting and other work affecting ground surface has been completed.
- D. Restrict pedestrian, bicycle, vehicular and other traffic from lawn areas until grass is established. Erect signs and barriers as required.
- E. Provide hose and lawn watering equipment as required.
- F. Planting Restrictions: Plant during on of the following periods.
 - 1. Spring Planting: May 15-June 30 for cool and warm season grasses.
 - 2. Fall planting: September 1-October 15 for cool season grasses only and dormant planting is to be November 1-December 15. Seeding operations shall occur immediately after preparation of bed during this season only, except when prior written permission is obtained from the Architect.

3. Weather Limitations: The actual planting shall be performed during those times in this season which are normal for such work as determined by weather conditions, and accepted practice in the locality. No work shall be performed when the ground is frozen, wet or otherwise un-tillable or when even distribution of materials cannot be obtained.

1.7 MAINTENANCE SERVICE

1. Initial Turf Maintenance Service: Provide full maintenance for 1 year by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established.

2. PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry and new crop complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances. Provide seed mixture composed of grass species, proportions and minimum percentages of purity and germination. Noxious weed seed free.
- B. Seed Mixture types:
 1. Annual Ryegrass in areas along the trail and culvert
 2. Fescue Turf Blend in all other disturbed areas (staging area, site access, etc.)

2.2 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast-and slow-release nitrogen, 50 percent derived from natural organic sources or urea formaldehyde, phosphorous, and potassium in the following composition:
 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
- B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight
 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil report from a qualified soil-testing laboratory.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew-and seed free, salt hay or threshed strew of wheat, rye, oats, or barley.
- B. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

- C. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacture for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.4 PESTICIDES

- A. General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

2.5 WATER

- A. Water: Free of substance harmful to seed growth. Hoses or other methods of transportation furnished by Contractor.

3. EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
 - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
 - 2. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. Limit turf subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches . Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
 - 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 - 2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
 - 3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.
 - 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
- E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate as specified by seed suppliers
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes where shown on Drawings; installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with erosion-control mats where shown on Drawings; install and anchor according to manufacturer's written instructions.
- F. Protect seeded areas with slopes not exceeding 1:3 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons /acre to form a continuous blanket 1 inch in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 1. Mix slurry with manufacturer's recommended tackifier.
 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.
 3. Apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry coat at a rate so that mulch component is deposited at not less than 500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate. Apply slurry cover coat of fiber mulch (hydromulching) at a rate of 1000 lb/acre.

3.6 TURF MAINTENANCE

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water turf with fine spray at a minimum rate of 2 inch per week unless rainfall precipitation is adequate.
- C. Mow manicured turf grasses as soon as top growth is tall enough to cut. Repeat mowing to maintain a min 2.5 inch to 3 inch height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

3.7 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.8 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

3.9 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

C. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329200

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SECTION 33 42 00 – METAL PIPE AND PIPE ARCH CULVERTS

PART 1 - DESCRIPTION

- A. This work shall consist of providing corrugated metal pipe or pipe arch of the diameter or shape designated, laid upon a firm bed and backfilled as specified. Where pipe is referred to, this specification will also apply to pipe-arch, where appropriate. Pipe shall be in accordance with MoDOT Sec 724.
- B. If the contract specifies corrugated metallic-coated steel pipe culverts of 60-inch diameter or larger, the contractor may substitute structural plate pipe of like sizes, lengths and thicknesses of steel, constructed in accordance with MoDOT Sec 727, at the contractor's expense.
- C. If the contract specifies corrugated metallic-coated steel pipe or corrugated aluminum alloy pipe, or if the contract specifies pipe culverts by group and the contractor elects to furnish corrugated metallic-coated steel pipe or corrugated aluminum alloy pipe, the thickness of metal and size of corrugation for the respective pipe size shall be as shown on the plans unless otherwise specified. The overfill height shown on the plans or in the contract shall be used to determine the proper sheet thickness and size of corrugation for the individual pipe culvert. The minimum cover shall be measured as shown on the plans.
- D. When Group A pipe is specified and the contractor elects to furnish polymer coated corrugated metal culvert pipe or corrugated aluminum-coated steel culvert pipe, the following shall apply:
- E. The thickness of the coated sheet shall be a minimum thickness as follows:

Pipe Dia. Inches	Minimum Gauge of Steel Pipe	
	2 7/8" x 1/2" or 3/4" x 3/4" x 7 1/2" spiral rib Corr.	3" x 1" or 5" x 1" Corr.
< 42"	14	14
42" < 60"	12	12
60" < 78"	10	12
78" < 90"	8	12
90" < 108"	N/A	12
108" and above	N/A	10

- F. The predominate soil type in the area of any metal pipe installation shall have a pH in the range of 5 to 9 (4 to 9 for polymer coated pipe) using AASHTO T-289 test method.
- G. For bedding or backfill material that has greater than 35 percent passing the #200 sieve, the resistivity of the bedding or backfill shall be > 1500 ohm-cm (> 750 ohm-cm for polymer coated pipe) using AASHTO T- 288 test method.

- H. The contractor shall conduct any required pH and resistivity testing and report compliance to the engineer at least 30 days prior to installation.

1.2 MATERIAL

- A. All material shall be in accordance with MoDOT Division 1000, Material Details, and specifically as follows:

Item	Section
Corrugated Metallic-Coated Steel Culvert Pipe, Pipe-Arches and End Sections	<u>1020</u>
Bituminous Coated Corrugated Metal Culvert Pipe, Pipe Arch	<u>1021</u>
Corrugated Aluminum Alloy Culvert Pipe and Corrugated Aluminum Alloy Structural Plate	<u>1024</u>
Polymer Coated Corrugated Metal Culvert Pipe and Pipe Arches	<u>1027</u>

PART 2. CONSTRUCTION REQUIREMENTS

2.1 HANDLING

- A. All pipe shall be handled to avoid damage. Pipe having damaged coating, any localized bends in excess of five percent of the specified pipe diameter, or any dent in excess of 1/2 inch will be unacceptable, regardless of previous approvals. Rejected damaged pipe may be used if repaired to the satisfaction of the engineer.

PART 3. LAYING PIPE

- A. The pipe shall be carefully laid true to lines and grades shown on the plans. Riveted pipe shall be installed with the outside laps of circumferential joints pointing upstream and with no longitudinal lap placed on the bottom 120 degrees of the pipe on the sides. Any pipe that is not in true alignment or that shows any undue settlement after laying shall be taken up and re-laid at the contractor's expense. If shown on the plans or directed by the engineer, camber shall be built into the pipe structure to compensate for settlement from fill loads.
- B. Transverse field joints shall be of such design that the successive connection of pipe sections will form a continuous line free from appreciable irregularities in the flow line. Each successive length of pipe in a field joint shall be adjusted longitudinally or circumferentially when necessary such that coupling bands will properly engage the corrugations in both lengths of pipe.

3.2 INSTALLATION, BEDDING AND BACKFILL MATERIAL

- A. Metal pipe, bedding, backfill and installation shall be in accordance with AASHTO LRFD Bridge Construction Specifications Section 26 and as shown on the plans and specifications. When conflicts occur between AASHTO Section 26 and the plans and specifications the plans and specifications shall apply.

3.3 BEDDING AND BACKFILL MATERIAL.

- A. Bedding and backfill material shall meet the requirements of AASHTO M 145, A-1, A-2-4, A-2-5 or A-3. Bedding material shall have a maximum particle size of 1.25 inches. Backfill shall be free of organic material, stones larger than 1.5 inches or frozen lumps. Moisture content shall be in the range of optimum content to permit thorough compaction. For pipes with a corrugated exterior backfill gradations shall have a maximum particle size that will permit filling of the corrugations. Flowable backfill, such as low strength mortar, may also be used, provided adequate precautions are taken to prevent the pipe from floating and to fill all voids (including pipe corrugations) in the trench.

3.4 FOUNDATION AND BEDDING CONSTRUCTION.

- A. A stable and uniform bedding shall be provided for the pipe and protruding features of the drainage structure. The middle of the bedding equal to one-third the pipe outside diameter should be loosely placed, while the remainder shall be compacted to a minimum 90 percent of maximum density based upon standard proctor test. A minimum bedding depth of twice the corrugation depth shall be provided prior to placement of the pipe unless otherwise specified. When rock or unyielding material is present in the trench, a minimum bottom bedding of 6.0 inches shall be provided. If soft or unstable material is encountered the material shall be removed to a minimum depth of 10 inches below the bottom of the pipe and replaced with suitable granular material. Payment for any unsuitable material will be made per Sec 206.

3.5 BACKFILL CONSTRUCTION.

- A. Structural backfill shall be placed and compacted in layers not exceeding a loose lift thickness of 8 inches and brought up evenly. The side to side differential shall not exceed 24.0 inches or one-third of the rise of the structure. Backfill shall continue to not less than 1.0 ft. above the top of the pipe. Structural backfill shall be worked into the haunch area and compacted by hand. All backfill shall be compacted to a minimum 90 percent standard density based upon standard proctor test. Special compaction means may be necessary in the haunch area. Ponding or jetting structural backfill to achieve compaction shall not be permitted without the permission of the Engineer.

3.6 SHOP ELONGATION.

- A. Round corrugated steel pipe 48 inches or greater in diameter may be furnished round or shop elongated. The contractor shall maintain elongation during backfilling and embankment construction such that the vertical height of the opening after the embankment has been completed shall be no less than the diameter of the pipe or greater than the pre-elongated height.

3.7 CORRUGATED METAL DROP INLETS.

- A. The contractor shall install corrugated metal drop inlets of the proper size and length at the locations shown on the plans. The drop inlet shall be constructed of the same base metal and thickness of corrugated metal used in the culvert pipe and shall be in accordance with Sec 1020 or Sec 1024.

3.8 CORRUGATED METAL CURTAIN WALLS.

- A. The contractor shall install metal curtain walls of the proper size and shape at locations shown on the plans. Metal curtain walls shall be constructed of the same base metal used in the culvert pipe and shall be of the thickness of metal shown on the plans and in accordance with MoDOT Sec 1020 or MoDOT Sec 1024.

END OF SECTION 33 42 13

SECTION 33 42 13 – METALLIC-COATED STEEL CULVERT PIPE

PART 1 - SCOPE

- A. This specification covers corrugated steel pipe, pipe-arches and flared end sections intended for use in the construction of culverts and similar uses. The steel used in fabrication shall have a protective metallic coating of zinc (galvanizing) or aluminum.

PART 2. BASIS OF ACCEPTANCE

- A. Unless otherwise specified, the basis of acceptance will be in accordance with AASHTO M 36. Pipe shall be from an approved qualified plant and will be accepted based on certification, manufacturer quality control documentation and tests on samples as required by the engineer. Pipe may be fabricated using English units of measurement. Pipe fabricated using English measurements shall be in accordance with the dimensions and tolerances shown on the plans.

PART 3. MATERIAL

3.1 STEEL SHEET.

- A. Steel sheet shall be certifiable in accordance with AASHTO M 218 or AASHTO M 274. Finished steel sheet shall be free from injurious defects such as blisters, flux and uncoated spots.

3.2 ZINC COATING.

- A. Zinc for coating or galvanizing shall be prime western grade or better. Zinc-coated steel shall have a weight of zinc coating no less than 2.00 ounces psf of double exposed surface. If the average weight of zinc coating, as determined from the required samples, is less than 2.00 ounces psf, or if any one specimen has less than 1.80 ounces of zinc psf of double exposed surface, the lot sampled will be rejected or resampled, as determined by the engineer. If a retest is conducted, the weight of zinc coating of all of the original samples and the samples for retest shall average at least 2.00 ounces psf of double exposed surface, and no specimen shall have less than 1.80 ounces psf, or the entire lot sampled will be rejected. Adherence of coating shall be such that no peeling occurs while the material is being corrugated or formed into pipe.

3.3 ALUMINUM COATING.

- A. Aluminum for coating shall be commercially pure aluminum. The bath analysis shall be in accordance with the Aluminum Bath Analysis table shown on the plans. Aluminum-coated steel shall have a weight of aluminum coating no less than 1.00 ounce psf of double exposed surface. If the average weight of aluminum coating, as determined from the required samples, is less than 1.00 ounce psf or if any one specimen has less than 0.90 ounce of aluminum psf of double exposed surface, the lot sampled will be rejected or resampled, as determined by the engineer. If a retest is conducted, the weight of aluminum coating of all of the original samples and the samples for retest shall average at least 1.00 ounce psf of double exposed surface and no specimen shall have less than 0.90 ounce psf or the entire lot sampled will be rejected.

3.4 DOCUMENTATION

A. Sheet Manufacturer's Certified Analysis.

1. The manufacturer of each brand shall file with Construction and Materials a certificate setting forth the name or brand of metal to be furnished, the specified chemical composition and a typical or average analysis showing the percent of carbon, phosphorus, manganese, sulfur and silicon. The certificate shall be sworn to, for the manufacturer, by a person having legal authority to bind the company.

B. Sheet Manufacturer's Guarantee.

1. The manufacturer of the steel sheet shall submit with the certified analysis a guarantee providing that all metal furnished is in accordance with the specification requirements, shall bear a suitable identification brand or mark and shall be replaced without cost to the Commission when not in accordance with the specified analysis, sheet thickness or coating. The guarantee shall be so worded as to remain in effect as long as the manufacturer continues to furnish material. The manufacturer shall conduct such tests and measurements as necessary to ensure the material produced is in accordance with all specification requirements. These tests and measurements shall be identified by the identification symbols or code used on the sheet in a manner that will permit the manufacturer to produce specific reports showing test results representative of specific lots of steel sheet. Copies of reports of these tests shall be kept on file and shall be submitted to the engineer upon request. The brand shall be removed or obliterated by the manufacturer on all material where control tests, as outlined herein, do not show conformance to this specification.

PART 4. FABRICATION.

4.1 RIVETED SEAMS.

- A. A longitudinal seam will not be permitted on the corner radius or invert of pipe-arch.

4.2 RESISTANCE SPOT WELDED SEAMS.

- A. A longitudinal seam will not be permitted on the corner radius or invert of pipe arch.

4.3 SHOP ELONGATION.

- A. If round pipe is required to be shop elongated, the vertical axis shall be five percent greater than the nominal diameter. A tolerance of one percentage point in elongation will be permitted. Approximately 2 feet at each end of an installation may be left round to accommodate connecting end treatments or extensions. A paint mark to indicate the top of the pipe shall be placed on each piece of shop elongated pipe, and round ends on an elongated pipe shall be clearly marked "Outside End-Round".

4.4 BEVELED ENDS.

- A. Corrugated metal pipe requiring beveled ends to conform to the adjacent roadway slope shall be cut in such a manner as to leave smooth edges without damage to the coating away from the cut edge. Cut edges shall be completely covered with two coats of single

component inorganic zinc or organic zinc-rich paint meeting the approval of the engineer. No other end finish will be required for pipe with beveled ends.

4.5 END SECTIONS.

- A. Metal end sections shall be in accordance with the requirements for base metal, coating, fabrication, sampling, accepted brands of metal, sheet manufacturer's certified analysis, sheet manufacturer's guarantee, sheet thickness, workmanship and repair of coating. The sections shall conform to the shape, dimensions and sheet thicknesses shown on the plans, and shall be manufactured as integral units or so the sections may be readily assembled in place.

4.6 BANDS.

- A. Formed bands may be used on pipe with annular corrugations and helically corrugated pipe with reformed ends. Bands shall be formed with a minimum of two corrugations matching the profile of the pipes being joined together. The corrugations shall be spaced to provide seating in the second corrugation of each pipe and without creating more than 1/2-inch annular space between the pipe ends when joined together.
 - 1. Circumferentially corrugated bands, bands with projections and helically corrugated bands shall be so constructed as to lap on an equal portion of each of the culvert sections and shall be connected at the ends by galvanized angles having minimum dimensions of 2 x 2 x 3/16 inch, fastened with galvanized bolts of 1/2-inch minimum diameter. Formed bands shall be fastened together by two 1/2-inch bolts through a bar, and strap welded to the band. Angles shall be secured to the coupling bands by riveting, welding, resistance spot welding or a method approved by the engineer at each corrugation. Rivets shall be placed such that the head of the rivet will be on the inside of the band. Welds, except for resistance spot welds, shall be painted with one coat of zinc dust-zinc oxide or zinc-rich paint meeting the approval of the engineer. The 7-inch and 10 1/2-inch bands shall have at least two fastening bolts, the 12-inch and 14-inch bands shall have at least three fastening bolts and the 16 1/4-inch or greater bands shall have at least four fastening bolts. Alternate methods of fastening the ends of coupling bands may be used if approved by the engineer. Coupling bands for pipe-arch and shop elongated pipe shall be shaped to fit the structure.
 - 2. As an alternate to coupling bands, a bell and spigot joint system may be used as approved by Construction and Materials.

4.7 SPECIAL FITTINGS.

- A. Special fittings, angles and tees shown on the plans shall be fabricated by welding in such a manner as to avoid excessive damage to the coating away from the welded area. The welded area and adjacent damaged coating shall be repaired in accordance with MoDOT Sec 1020.6.

PART 5. SAMPLING, TESTING AND ACCEPTANCE PROCEDURES.

- A. All fabrication plants furnishing pipe for MoDOT projects shall be qualified as herein described. A pipe distributor, who does not fabricate pipe, may attain qualification as set forth for a pipe manufacturer or may furnish pipe for MoDOT projects that is marked and certified from an approved plant. All pipe will be subject to inspection by the engineer at the source of manufacture, at an intermediate shipping terminal or at destination. The engineer

shall be allowed unlimited access to all facilities and records, as required, to conduct inspection and sampling in accordance with Sec 106.

5.2 APPLICATION FOR PLACEMENT ON THE QUALIFIED LIST.

- A. For a plant to become qualified, a written request shall be sent by the manufacturer to Construction and Materials with the following information:
- B. A QC Plan, in accordance with MoDOT Sec 1020.5.2, for each plant from which pipe is to be fabricated for use on MoDOT projects. A certification statement from the manufacturer that the quality control procedures at the plant, at a minimum, meet the requirements set forth in the manufacturer's QC Plan.
- C. Sources for each material to be used in the fabrication of pipe shall be provided.
- D. A guarantee that all material to be used in the fabrication of pipe will be in accordance with MoDOT specifications and that pre-approval for any source of material will be received prior to use.
- E. Units of measurement, English or metric, used to fabricate the pipe.

5.3 MANUFACTURER'S QC PLANS

- A. The QC Plan for each plant shall include the following:
- B. A list of personnel with corresponding authority and responsibility.
- C. Qualifications and training of QC personnel, current and proposed.
- D. A description of how the manufacturer proposes to control production in order to assure all material and workmanship incorporated into the fabrication of pipe meets the applicable specification requirements.
- E. Lot sizes, the specific tests to be performed during or after production, frequency of these tests, the point where samples or inspections will be obtained or performed, and the format for recording test data.
- F. A drawing, photograph or copy of the manufacturer's identification marking.
- G. A plan for resolving conflicts.
- H. Designate how the pipe will be identified as pipe for MoDOT projects if the pipe is stockpiled and not marked in accordance with Sec 1020.7.

5.4 MAINTAINING QUALIFICATION.

- A. To maintain qualification, the manufacturer and plant shall perform and maintain quality control in accordance with the manufacturer's QC Plan approved by Construction and Materials. The manufacturer or plant shall conduct tests and inspections to verify that adequate quality control is maintained and that the pipe furnished is in accordance with Sec 1020. The manufacturer or plant shall maintain for three years a record of all test results and ins

pections for review by the engineer. The records shall show that each shipment of pipe has been inspected by the plant's QC personnel. The record shall indicate the purchase order number or the project number, route, county, date of inspection, size of corrugation, type of fabrication, quantity in lineal feet, number of bands and end sections, pipe diameter, sheet thickness, brand and heat number of the base metal, and the coating lot number. The manufacturer or plant shall notify the engineer responsible for inspection of that plant at least 24 hours prior to each shipment. Additional pipe may be considered part of the original shipment when the ordered quantity was underestimated or material was lost or damaged. A bill of lading in accordance with Sec 1020.10 shall be provided for each shipment of pipe. Each plant shall maintain a current list of QC personnel with corresponding authority and responsibility. All training provided to QC personnel shall be documented with a brief description of the training and shall be kept on file at the plant.

5.5 DISQUALIFICATION OF A MANUFACTURER OR PLANT

- A. A manufacturer or plant may be disqualified to provide pipe for use on MoDOT projects based on the discretion of Construction and Materials, for reasons including, but not limited to, noncompliance with the manufacturer's QC Plan, failure of pipe to consistently meet specifications, falsification of documentation, unsatisfactory performance in the field or for other reasons indicating lack of consistent material or workmanship quality.
- B. A manufacturer or plant will not be considered for reinstatement until after one year from the date of removal for falsification of documents.
- C. Three notices of failure to meet the specification requirements within a 12-month period will be cause for disqualification of a plant for one year, effective from the date of the third notice.
- D. A manufacturer having two or more plants disqualified will constitute disqualification of the manufacturer for one year.
- E. A manufacturer or plant disqualified within one year of the end of a disqualification may be subject to permanent removal, with no application to be reinstated for a period of three years.
- F. Reinstatement of a Manufacturer or Plant. Consideration of reinstatement of a manufacturer or a plant once disqualified will be no sooner than specified in MoDOT Sec 1020.5.4, will require a written document from the manufacturer or plant stating the reasons for disqualification and the action taken to correct those deficiencies, written concurrence from Construction and Materials that the problem has been suitably addressed, and followed by an application in accordance with MoDOT Sec 1020.5.1.
- G. **Sampling of Material.**
 - 1. Random sampling of the pipe or material used in the production of pipe will be conducted by the engineer to verify if the pipe and material are in accordance with the applicable specifications. Sampling size and frequency will be at the discretion of the engineer. In the event pipe materials certified by the manufacturer are not in accordance with MoDOT Sec 1020 as determined by random sampling, testing and inspection, all pipe incorporating that material will be rejected.
- H. **Mill and Factory Inspection.**

1. The engineer may have the material inspected and sampled in the rolling mill or in the shop where fabricated. The engineer may require from the mill the chemical analysis of any heat number. The inspection, either in the mill or in the shop, shall be under the direction of the engineer. The engineer shall have unlimited access to the mill or shop for inspection, and every facility shall be extended for the purpose of inspection. Any material or pipe that has been previously rejected at the mill or shop and included in a later lot will be considered sufficient cause for rejection of the entire lot.

I. Inspection.

1. Inspection by the engineer will include an examination of the pipe for deficiency in specified diameter, net length of finished pipe and any evidence of poor workmanship. The inspection may include taking samples for chemical analysis, mechanical properties and determination of weight of coating. The pipe making up the shipment shall meet all requirements of these specifications. If 10 percent of the pipe in any lot fails to meet these requirements, the entire lot may be rejected.

J. Sampling of Coated Steel.

1. Samples of coated steel sheet may be obtained from coils, flat or corrugated cut lengths or fabricated culverts. Samples shall be taken at a frequency determined by the manufacturer's QC Plan or as required by the engineer.
2. For testing weight of coating of flat or corrugated cut lengths before fabrication, three specimens, each no less than 2 1/4 inches square or of an equivalent area, shall be taken from each test sheet selected to represent the lot. The specimens shall be taken such that no part includes metal closer than 2 inches from an edge or 4 inches from an end of the cut length. These specimens shall be obtained in any one of the following patterns:
 - a. One specimen shall be obtained from the center of the cut length and the other two in a straight line diagonally at the opposite corners.
 - b. Specimens shall be taken in a straight line from one end of the cut length, one from the middle portion and one from near each edge.
3. For testing weight of coating of coils before fabrication, three specimens, each no less than 2 1/4 inches square or of an equivalent area, shall be taken, one from the middle of the width and one from each side. No specimen shall be taken closer than 2 inches from an edge or 4 inches from an end of the coil.
4. For testing weight of coating of fabricated pipe or pipe-arch, at least one specimen 2 1/4 inches square or of equivalent area, shall be selected for each 20 pieces of pipe within a given lot selected to be tested, provided that no less than three specimens, each from a different piece, shall represent any one lot. The three specimens shall constitute one sample and shall be in accordance with MoDOT Sec 1020.3.
5. For chemical analysis of the base metal of flat or corrugated cut lengths before fabrication, a specimen, no less than 2 1/4 inches square or of an equivalent area, shall be taken from each of three different cut lengths for lots weighing 5 tons or less, from four cut lengths for lots weighing more than 5 tons and less than 10 tons and from five cut lengths for lots weighing 10 tons or more. Drillings or chips from the specimens shall be thoroughly mixed for analysis.
6. For chemical analysis of the base metal of coils, three specimens, each no less than 2 1/4 inches square or of an equivalent area, shall be taken from across the width of the coil, or if more than one mill lift or coil is involved, three specimens shall be

selected from each of at least two different coils. Drillings or chips from the specimens shall be thoroughly mixed for analysis.

7. When chemical analysis of base metal of fabricated pipe or pipe-arch is required, the analysis shall be performed on the same specimens taken for determination of weight of coating.
8. For testing mechanical properties of the base metal, two specimens, each 4 x 14 inches, shall be taken from one end of a cut length or coil. The 14-inch dimension shall be in the longitudinal direction of the steel sheet. No specimen shall be taken closer than 2 inches from an edge or 4 inches from an end of a sheet.
9. Samples for retest of weight of coating on cut lengths shall be taken in accordance with pattern (a) of Sec 1020.5.9.1. Samples for retest of mechanical properties or chemical composition of any base metal or retest of weight of coating on coils or fabricated pipe or pipe-arch shall be taken in the same manner as for the original test.

K. Testing of Metallic-Coated Steel.

1. Tests for weight of coating, chemical composition and mechanical properties of metallic-coated steel sheets shall be as herein specified.
2. Test specimen size and method of test for determining weight of coating shall be in accordance with AASHTO T 65 for zinc coatings, and AASHTO T 213 for aluminum coatings. At the option of the engineer, material may be accepted on the basis of magnetic gauge determinations made in accordance with ASTM E 376.
3. The method of test for chemical analysis shall be in accordance with ASTM E 30-68, exclusive of any later revisions or additions.
4. Test specimen size and method of test for determining tensile strength, yield strength and elongation shall be in accordance with ASTM A 370 for sheet steel.

L. Acceptance of Metallic-Coated Steel Sheet.

1. Acceptance of metallic-coated steel sheet will be based on a satisfactory sheet manufacturer's certified analysis and guarantee and sheet identification markings, upon tests on samples of the material, or upon both. The frequency of sampling will be determined by the engineer. The fabricator shall provide the equipment and personnel required to obtain the samples as directed by the engineer.

M. Accepted Brands of Metal.

1. No metal will be accepted under these specifications until the sheet manufacturer's certified analysis and manufacturer's guarantee have been approved by the engineer. Misbranding or other misrepresentation and non-uniformity of product, will each be considered sufficient reason to discontinue the acceptance of any brand under these specifications, and notice sent to the sheet manufacturer of the discontinuance of acceptance of any brand will be considered to be notice to all culvert companies that handle that particular brand.

N. Sampling and Testing of Continuous Lock Seam.

1. Sampling and testing for continuous lock seam quality control shall be in accordance with AASHTO T 249.
2. The pipe manufacturer or plant shall cut, log and retain quality control samples, which shall be retained for two years. Visual examination samples for quality control shall be cut during production. The manufacturer or plant shall sample a minimum of one lock per coil when the same diameter of pipe is being produced. The samples

shall be taken from the beginning of the coil. If diameters are changed within a coil, at least one lock per diameter shall be taken. Quality control tension test specimens shall be taken from pipe representing each sheet thickness and diameter the first time that sheet thickness and diameter is produced. In addition, each sheet thickness thereafter shall be sampled on a monthly basis during production for tension testing of the seam. The manufacturer or plant shall record all tension test results and retain those records for two years.

3. Inspection by the engineer will include random visual examination samples and tension test samples taken in the presence of the engineer. If visual examination samples indicate nonconformance, that length of the pipe will be rejected, and a resample will be taken from a different length of pipe of the same sheet thickness of the same diameter. If the resample fails, each shipment of that sheet thickness thereafter shall be sampled for visual examination and tension testing until the engineer determines that satisfactory quality control is established. Pipe from which tension test specimens have been taken may be cut and the undamaged portion accepted for use.

O. Repair of Damaged Coating.

1. Damaged coating on pipe shall be repaired in accordance with AASHTO M 36, except as follows. Coating damaged in the field shall be repaired by recoating by the hot-dip process or by the metallizing process, except that in instances of minor damage to areas in the upper two-thirds of the perimeter as installed, the engineer may permit repair in the same manner as specified for repair during fabrication. The fabricated unit shall be thoroughly cleaned prior to recoating. The hot-dip process shall be in accordance with Sec 1020.3.

P. Marking.

1. Each section of pipe to be used on MoDOT projects shall be marked with an approved manufacturer's identification marking prior to shipment. The marking shall be permanent and located within 12 inches of the downstream end of the pipe.

Q. Handling.

1. All pipe shall be handled with care to avoid damage. Pipe having damaged coating, localized bends in excess of 5 percent of the specified pipe diameter or any dent in excess of 1/2 inch will be rejected at the site of the work regardless of previous approvals. Rejected damaged pipe may be used if repaired to the satisfaction of the engineer.

- R. MoDOT Identification Number.** When the manufacturer contacts the engineer in accordance with Sec 1020.5.3, the engineer will assign a specific MoDOT identification number for each size of pipe in the shipment.

S. Bill of Lading.

1. A bill of lading or delivery receipt for each shipment of pipe shall be furnished to the engineer at the shipping and destination points. The bill of lading shall contain an itemized statement of the sizes and lengths of pipe with the corresponding designated MoDOT identification number provided to the manufacturer for each size of pipe for that shipment. The bill of lading shall contain a certified statement. The certified statement shall be signed by an authorized representative of the

manufacturer and shall state the following: "This certifies that the pipe, bands and end sections in this shipment are in accordance with MoDOT specifications, were fabricated at an approved plant and were fabricated from the following brand names:"

5.6

5.7 END OF SECTION 33 42 13

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