

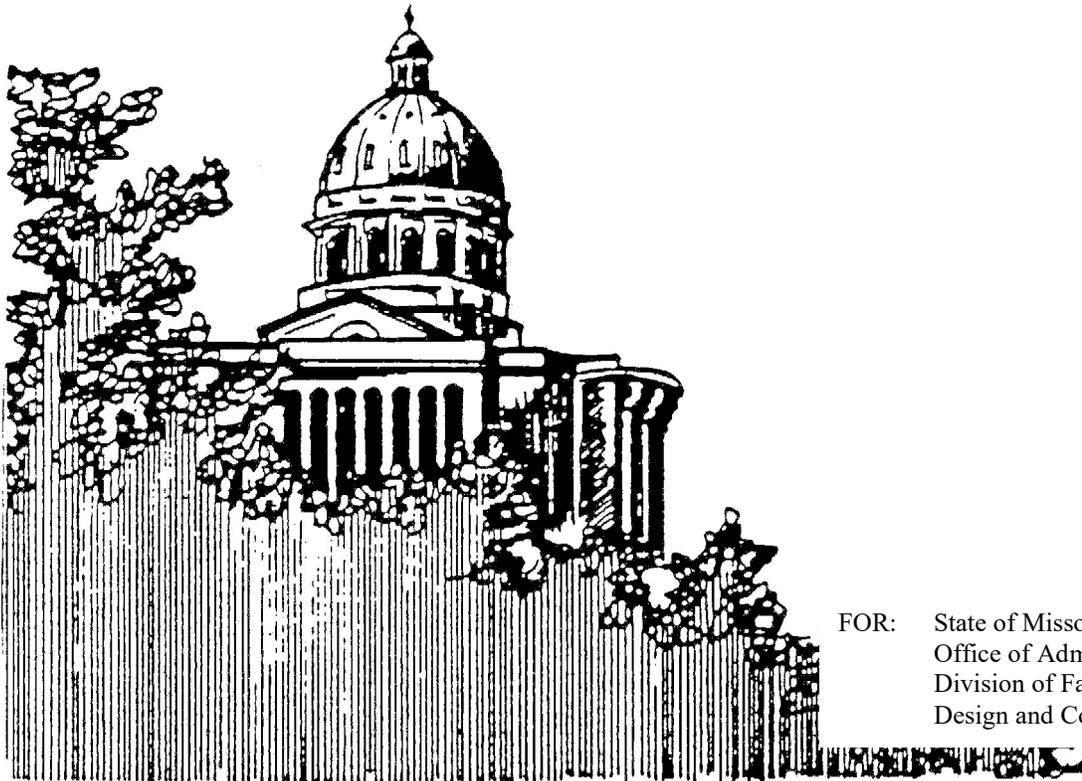
# PROJECT MANUAL

## New Pavilion Missouri State Fairgrounds Sedalia, Missouri

DESIGNED BY: OA/Facilities Mgmt. Design & Construction  
301 West High Street, Suite 730  
Jefferson City, Missouri 65102

DATE ISSUED: 11/15/2019

PROJECT NO.: F2001-01



FOR: State of Missouri  
Office of Administration  
Division of Facilities Management,  
Design and Construction

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## SECTION 000115 – LIST OF DRAWINGS

### 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.	Cover Sheet	Sheet G-001	11/15/19
2.	Site Plan	Sheet C-100	11/15/19
3.	Site Survey	Sheet C-101	11/15/19
4.	Site Details	Sheet C-500	11/15/19
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6.	Roof Plan	Sheet A-102	11/15/19
7.	Exterior Elevations	Sheet A-201	11/15/19
8.	Building Sections	Sheet A-301	11/15/19
9.	Structural Notes	Sheet S-100	11/15/19
10.	Foundation Plan	Sheet S-200	11/15/19
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12.	Plumbing Site Plan	Sheet P-100	11/15/19
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**END OF SECTION 000115**

## 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. New Pavilion  
Missouri State Fairgrounds  
Sedalia, Missouri  
**Project No.: F2001-01**

### 3.0 BIDS WILL BE RECEIVED:

- A. Until: 1:30 PM, Thursday, December 19, 2019
- B. **Only electronic bids on MissouriBUYS shall be accepted: <https://missouribuys.mo.gov>. Bidder must be registered to bid.**

### 4.0 DESCRIPTION:

- A. Scope: The project includes the construction of a new owner-furnished pavilion with concrete foundation and slab.
- B. Estimate: \$419,000.00 to \$576,000.00
- C. MBE/WBE/SDVE Goals: MBE 10.00%, WBE 10.00%, & SDVE 3.00%. **NOTE: Only MBE/WBE firms certified by a State of Missouri public entity 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.**
- D. **\*\*NOTE:** Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.

### 5.0 PRE-BID MEETING:

- A. Place/Time: 09:00 AM; Monday, December 9, 2019; Administration Building, 2503 W 16th St, Sedalia, MO 64301.
- 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: OA/Facilities Mgmt Design & Construction, Jared Cook, phone # (573) 751-3339, fax # (573) 751-7277
- B. Project Manager: Jared Cook, phone # 573-690-6733, fax # 573-751-7277

### 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.

## 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 before access is granted to the solicitation details and bidding is possible, however, the bidder can review a summary of the project by selecting "Bid Board" and then checking off "Open" under "Status" and "OA-FMDC-Contracts Chapter 8" under "Organization" in the boxes shown on the left margin.
- B. Once registered, log in.
1. Under "Solicitation" select "View Current Solicitations." A new screen will open.
  2. Under "Filter by Agency" select "OA-FMDC-Contracts Chapter 8."
  3. Under "Filter by Opp. No." type in the State Project Number. Select "Submit."
  4. Above the dark blue bar, select "Other Active Opportunities."
  5. 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.
- 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, we encourage you to submit a fake bid early. Label the fake bid as such to distinguish it from the real bid. The contracts person you contact will let you know if your "bid" was received successfully. Please contact Drew Henrickson: 573-751-8128, [drew.henrickson@oa.mo.gov](mailto:drew.henrickson@oa.mo.gov); Marlene Blackburn: 573-522-6035, [marlene.blackburn@oa.mo.gov](mailto:marlene.blackburn@oa.mo.gov); or Kelly Copeland: 573-522-2283, [kelly.copeland@oa.mo.gov](mailto:kelly.copeland@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](mailto:cathy.holliday@oa.mo.gov).

## **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, will be required to undergo a fingerprint background check and obtain a State of Missouri identification badge prior to beginning work on site. The Bidder should review the information regarding this requirement in Section 013513 – Site Security and Health Requirements prior to submitting a bid.
- 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

- 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. In awarding the contract the Owner may take into consideration the bidder's skill, facilities, capacity, experience, responsibility, previous work record, financial standing and the necessity of prompt and efficient completion of work herein described. Inability of any bidder to meet the requirements mentioned above may be cause for rejection of his bid. However, no contract will be awarded to any individual,

partnership or corporation, who has had a contract with the State of Missouri declared in default within the preceding twelve months.

- 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 low 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 a 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, 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 - 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.

**A. 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.

**B. 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/oeo/>). 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 (<http://oa.mo.gov/purchasing/vendor-information/missouri-service-disabled-veteran-business-enterprise-sdve-information>) or the Department of Veterans Affairs' directory (<https://www.vip.vetbiz.gov/>).
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).

**C. 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.

**D. 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***

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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://www.vip.vetbiz.va.gov>



**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: \$

DELETE THE ALTERNATE INFORMATION IF NOT USED

The Owner accepts the following Alternate Bids:

Alternate One: \$

**TOTAL CONTRACT AMOUNT: (\$CONTRACT AMOUNT)**

**UNIT PRICES:** The Owner accepts the following Unit Prices: NOT APPLICABLE

**ARTICLE 5. PREVAILING WAGE RATE**

It is understood and agreed by and between the parties that not less than the prevailing hourly rate of wages shall be paid for work of a similar character 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 in the locality in which the work is performed, both as determined by the Department of Labor and Industrial Relations or as determined by the court on appeal, to all workmen employed by or on behalf of the Contractor or any subcontractor, exclusive of maintenance work. Only such workmen as are directly employed by the Contractor or his subcontractors, in actual construction work on the site shall be deemed to be employed.

When the hauling of materials or equipment includes some phase of the construction other than the mere transportation to the site of the construction, workmen engaged in this dual capacity shall be deemed to be employed directly on the project and entitled to the prevailing wage.

**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**

Contract documents shall consist of the following component parts:

1. Division 0, with executed forms
2. Division 1
3. Executed Construction Contract Form
4. The Drawings
5. The Technical Specifications
6. Addenda
7. Contractor's Proposal as accepted by the Owner

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

**APPROVED:**

\_\_\_\_\_  
 Mark Hill, P.E., Director  
 Division of Facilities Management,  
 Design and Construction

\_\_\_\_\_  
 Contractor's Authorized Signature

**DELETE IF PRIVATE OR PARTNERSHIP**

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
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NAME
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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
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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
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**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)			

**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**

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**REASON FOR SUBSTITUTION**

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**DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?**

YES     NO

IF YES, EXPLAIN

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**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:

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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



STATE OF MISSOURI  
 OFFICE OF ADMINISTRATION  
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  
**MBE/WBE/SDVE PROGRESS REPORT**  
 SUBMIT WITH **ALL** INVOICES: (PLEASE CHECK APPROPRIATE BOX BELOW)  
CONSULTANT      CONSTRUCTION

INVOICE NO.	PROJECT NUMBER
CHECK IF FINAL <input type="checkbox"/> <b>FINAL</b>	DATE

PROJECT TITLE
PROJECT LOCATION
FIRM
TOTAL CONTRACT AMOUNT \$

THE PERCENTAGE AND DOLLAR AMOUNT OF THIS PROJECT THAT ARE TO BE MBE/WBE/SDVE AS INDICATED IN THE ORIGINAL CONTRACT:      % and \$ .

<b>CHECK</b> MBE WBE SDVE	ITEM OF WORK	TOTAL AMOUNT OF SUBCONTRACT	\$ AMOUNT & % COMPLETE (PAID-TO-DATE)	CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER NAME, ADDRESS, CONTACT, AND PHONE NUMBER
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"/>		\$	\$  %	- -

ORIGINAL: Attach to ALL Progress and Final Payments



STATE OF MISSOURI  
 OFFICE OF ADMINISTRATION  
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  
**AFFIDAVIT – COMPLIANCE WITH PREVAILING WAGE LAW**

PROJECT NUMBER
----------------

Before me, the undersigned Notary Public, in and for the County of \_\_\_\_\_  
 State of \_\_\_\_\_ personally came and appeared \_\_\_\_\_  
 (NAME)  
 \_\_\_\_\_  
 of the \_\_\_\_\_  
 (POSITION) (NAME OF THE COMPANY)  
 (a corporation) (a partnership) (a proprietorship) and after being duly sworn did depose and say that all provisions and requirements set out in Chapter 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works project have been fully satisfied and there has been no exception to the full and completed compliance with said provisions and requirements and with Wage Determination No: \_\_\_\_\_ issued by the Department of Labor and Industrial Relations, State of Missouri on the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_ in carrying out the contract and working in connection with \_\_\_\_\_  
 (NAME OF PROJECT)  
 Located at \_\_\_\_\_ in \_\_\_\_\_ County  
 (NAME OF THE INSTITUTION)  
 Missouri, and completed on the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_

SIGNATURE

**NOTARY INFORMATION**

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

FILE: Closeout Documents

# GENERAL CONDITIONS

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## 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

- A. 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, 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**

- A. 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**

- A. 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**

#### **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**

- A. 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/Project Manager: Jared Cook  
Division of Facilities Management Design and Construction  
301 West High Street, Suite 730  
Jefferson City, Missouri 65102  
Telephone: (573) 690-6733; Fax: (573) 751-7277  
Email: [Jared.Cook2@oa.mo.gov](mailto:Jared.Cook2@oa.mo.gov)

Construction Representative: Randy Duncan  
Division of Facilities Management, Design and Construction  
709 Missouri Blvd (upper level), Jefferson City, MO 65109  
Telephone: 573-619-4395; Fax: 573-522-1763  
Email: [Randy.Duncan@oa.mo.gov](mailto:Randy.Duncan@oa.mo.gov)

Contract Specialist: Kelly Copeland  
Division of Facilities Management, Design and Construction  
301 West High Street, Room 730  
Jefferson City, Missouri 65102  
Telephone: 573-522-2283; Fax: 573-751-7277  
Email: [kelly.copeland@oa.mo.gov](mailto:kelly.copeland@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 10 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 10 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 ILLEGAL IMMIGRATION REFORM AND IMMIGRANT RESPONSIBILITY ACT**

The Contractor understands and agrees that by signing a contract for this project, they certify the following:

- A. The Contractor shall only utilize personnel authorized to work in the United States in accordance with applicable federal and state laws. This includes but is not limited to the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and INA Section 274A.
- B. If the Contractor is found to be in violation of this requirement or the applicable laws of the state, federal and local laws and regulations, and if the State of Missouri has reasonable cause to believe that the Contractor has knowingly employed individuals who are not eligible to work in the United States, the state shall have the right to cancel the contract immediately without penalty or recourse and suspend or debar the contractor from doing business with the state.
- C. The Contractor agrees to fully cooperate with any audit or investigation from federal, state or local law enforcement agencies.

### **6.0 SAFETY REQUIREMENTS**

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

# Missouri

## Division of Labor Standards

### WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

# Annual Wage Order No. 26

Section 080  
**PETTIS 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

Taylor Burks, Director  
Division of Labor Standards

Filed With Secretary of State: \_\_\_\_\_ **March 8, 2019**

Last Date Objections May Be Filed: **April 8, 2019**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	** Date of Increase	Basic Hourly Rates
Asbestos Worker		\$20.23*
Boilermaker		\$20.23*
Bricklayer		\$49.75
Carpenter		\$48.86
Lather		
Linoleum Layer		
Millwright		
Pile Driver		
Cement Mason		\$20.23*
Plasterer		
Communications Technician		\$20.23*
Electrician (Inside Wireman)		\$20.23*
Electrician Outside Lineman		\$20.23*
Lineman Operator		
Lineman - Tree Trimmer		
Groundman		
Groundman - Tree Trimmer		
Elevator Constructor		\$20.23*
Glazier		\$20.23*
Ironworker		\$20.23*
Laborer		\$36.00
General Laborer		
First Semi-Skilled		
Second Semi-Skilled		
Mason		\$20.23*
Marble Mason		
Marble Finisher		
Terrazzo Worker		
Terrazzo Finisher		
Tile Setter		
Tile Finisher		
Operating Engineer		\$20.23*
Group I		
Group II		
Group III		
Group III-A		
Group IV		
Group V		
Painter		\$36.36
Plumber		\$65.85
Pipe Fitter		
Roofer		\$20.23*
Sheet Metal Worker		\$37.55
Sprinkler Fitter		\$20.23*
Truck Driver		\$20.23*
Truck Control Service Driver		
Group I		
Group II		
Group III		
Group IV		

\*The Division of Labor Standards received less than 1,000 reportable hours as required by RSMo 290.257.4(b). Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center, in accordance with RSMo 290.257.2.

Heavy Construction Rates for  
PETTIS County

OCCUPATIONAL TITLE	** Date of Increase	Basic Hourly Rates
Carpenter		\$20.23*
Millwright		
Pile Driver		
Electrician (Outside Lineman)		\$20.23*
Lineman Operator		
Lineman - Tree Trimmer		
Groundman		
Groundman - Tree Trimmer		
Laborer		\$38.83
General Laborer		
Skilled Laborer		
Operating Engineer		\$51.88
Group I		
Group II		
Group III		
Group IV		
Truck Driver		\$20.23*
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 less than 1,000 reportable hours as required by RSMo 290.257.4(b). Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center, in accordance with RSMo 290.257.2.

# 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 011000 – 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 of **the installation of an owner furnished, pre-fabricated, open air metal building for use as an event center for the Missouri State Fair.**
  - 1. Project Location: **2503 W 16<sup>th</sup> St, Sedalia, MO 64301**
  - 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 **11/15/2019** were prepared for the Project by **OA-FMDC, 301 W High st, Jefferson City, MO 65101.**
- C. The Work consists of **constructing new owner furnished pavilion with concrete foundation.**
- D. The Work will be constructed under a single prime contract.

#### 1.3 DESIGNER'S ESTIMATE OF CONSTRUCTION COSTS

- A. Estimate Range: \$419,000 – \$576,000

#### 1.4 WORK UNDER OTHER CONTRACTS

- A. Cooperate fully with separate contractors so that work under those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

#### 1.5 FUTURE WORK

- A. Future Contract: The Owner will be awarding a separate contract for additional work to be performed at the site following Substantial Completion. Completion of that work depends on successful completion work under this Contract. The Contract for future work includes the addition of electrical and water services to the pavilion.

#### 1.6 WORK SEQUENCE

- A. The Work will be conducted in one phase, to be completed by **6/1/19**.

#### 1.7 CONTRACTOR USE OF PREMISES

- A. 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.
- B. Use of the Existing Building: Repair damage cause by construction operations. Take all precautions necessary to protect the building during the construction period..

## **1.8 OCCUPANCY REQUIREMENTS**

- A. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
1. The Designer will prepare a Certificate of Partial Occupancy for each specific portion of the Work to be occupied prior to substantial completion.
  2. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions for the building.
  3. Upon occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions for the building.

## **1.9 OWNER-FURNISHED PRODUCTS**

- A. The Owner will furnish metal building for new pavilion. The Work includes providing support systems to receive Owner's equipment, and mechanical and electrical connections. As well as constructing concrete pad for new pavilion.
1. The Owner will arrange for and deliver necessary shop drawings, product data, and samples to the Contractor.
  2. The Contractor is responsible for receiving, unloading and handling Owner furnished items at the site.
  3. Following delivery, the Contractor will inspect items delivered for damage. The Contractor shall notify the Owner of damaged items.
  4. If Owner-furnished items are damaged, defective, or missing, the Owner will arrange for replacement.
  5. The Owner will arrange for manufacturer's field services and for the delivery of manufacturer's warranties to the appropriate Contractor.
  6. The Contractor shall designate delivery dates of Owner-furnished items in the Contractor's Construction Schedule.
  7. The Contractor shall review shop drawings, product data and samples and return them to the Designer noting discrepancies or problems anticipated in use of the project.
  8. The Contractor is responsible for protecting Owner-furnished items from damage, including damage from exposure to the elements. The Contractor shall repair or replace items damaged as a result of his operations.

**1.10 MISCELLANEOUS PROVISIONS**

**PART 2 - PRODUCTS**

**2.1 SEE APPENDIX 2 AND PRELIMINARY NUCOR DRAWINGS FOR PRE-FABRICATED BUILDING INFORMATION.**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 011000**

## **SECTION 012300 - ALTERNATES**

### **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 governing Alternates.

#### **1.3 DEFINITIONS**

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents..
  - 1. The cost for each alternate is the net addition to the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.
- B. No additional time will be allowed for alternate work unless the number of work days is so stated on the bid form.

#### **1.4 PROCEDURES**

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate the Alternate Work into the Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- B. Notification: The award of the Contract will indicate whether alternates have been accepted or rejected.
- C. Execute accepted alternates under the same conditions as other Work of this Contract.
- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

### **PART 2 - PRODUCTS (Not Applicable)**

### **PART 3 - EXECUTION**

#### **3.1 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1: *Provide and install sound deadening insulation to the underside of roof panels and associated building frame as per specification section 098000.*

### **END OF SECTION 012300 ALTERNATES**

## **SECTION 012600 – 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. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
  - 2. Division 0, Section 007213, Article 4.0 "Changes in the Work" for Contract Change 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 Contract Change 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 Contract Change Detailed Breakdown form. Subcontractors may use the appropriate Contract Change 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 CONTRACT CHANGE PROCEDURES**

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

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION**

### **3.1 REFERENCED FORMS**

- A. The following forms can be found on our website at <https://oa.mo.gov/facilities/vendor-links/architectengineering-forms> or <https://oa.mo.gov/facilities/vendor-links/contractor-forms>:
  - 1. Request for Information
  - 2. Designer's Supplemental Instructions
  - 3. Request for Proposal
  - 4. Contract Change
  - 5. Contract Change Detailed Breakdown – SAMPLES

6. Contract Change Detailed Breakdown – General Contractor (GC)
7. Contract Change Detailed Breakdown – Subcontractor (SUB)

**END OF SECTION 012600**

## **SECTION 013100 – 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. Division 1, Section 013200 "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.
  - 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.
- B. 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.
- C. 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.

#### **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 Contract Changes
    - 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.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 013100**

## **SECTION 013200 – 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.
- 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.
  - 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 013200**

## **SECTION 013300 – 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.

#### **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 two (2) sets of prints, black and white, glossy; 8"x10" size; mounted on 8½"x11" soft card stock with left edge binding margin for 3-hole punch.
  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.

SECTION	DESCRIPTION	TYPE OF SUBMITTAL											
		Shop Drawings/Engineer drawings	Product Data	Sample	Certifications/Qualification reports	Manufacturer's Instructions	Test report	Inspection Report	Wiring Diagrams	Record Photographs/Drawings	Maintenance Data/Stock material	Operating Instruction	Warranty
013100	Coordination				X								
013200	Schedules – Bar Chart			X									
013513.28	Site Security		X		X								
033000	Cast-In-Place Concrete	X	X		X		X	X		X			
051200	Structural Steel Framing	X	X		X		X	X					
099113	Exterior Painting		X	X							X		
133419	Metal Building Systems	X	X	X	X	X	X	X					X
221005	Plumbing Piping	X	X							X			
311000	Site Clearing									X			
312000	Earthmoving		X		X		X	X		X			
312500	Erosion Control	X	X										
321373	Pavement Joint Sealants		X		X		X						

END OF SECTION 013300

## **SECTION 013513.28 – SITE SECURITY AND HEALTH REQUIREMENTS**

### **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 SECURITY CLEARANCES AND RESTRICTIONS**

#### **A. FMDC REQUIRED FINGERPRINTING FOR CRIMINAL BACKGROUND AND WARRANTS CHECK**

1. All employees of the Contractor are required to submit fingerprints to the Missouri State
2. Highway Patrol to enable the Office of Administration, Division of Facilities Management, Design and Construction (FMDC) to receive state and national criminal background checks on such employees. FMDC will also check with law enforcement to determine if any of the Contractor's employees has an outstanding warrant for his or her arrest. FMDC reserves the right to prohibit any employee of the Contractor from performing work in or on the premises of any facility owned, operated, or utilized by the State of Missouri for any reason.
3. The Contractor shall ensure all of its employees submit fingerprints to the Missouri State Highway Patrol and pay for the cost of such background checks. The Contractor shall submit to FMDC a list of the names of the Contractor's employees who will be fingerprinted and a signed Missouri Applicant Fingerprint Privacy Notice, Applicant Privacy Rights and Privacy Act Statement for each employee. All employees of the Contractor approved by FMDC to work at a State facility must obtain a contractor ID badge from FMDC prior to beginning work on-site,

unless the Director of FMDC, at the Director's discretion, waives the requirement for a contractor ID badge. The Contractor and its employees must comply with the process for background checks and contractor ID badges found on FMDC's website at: <https://oa.mo.gov/fmdc-contractor-id-badges>

4. Pursuant to section 43.540, RSMo, FMDC participates in the Missouri Rap Back and National Rap Back programs as of August 28, 2018. This means that the Missouri State Highway Patrol, Central Records Repository, and the Federal Bureau of Investigation will retain the fingerprints submitted by each of the Contractor's employees, and those fingerprints will be searched against other fingerprints on file, including latent fingerprints. While retained, an employee's fingerprints may continue to be compared against other fingerprints submitted or retained by the Federal Bureau of Investigation, including latent fingerprints.
5. As part of the Missouri and National Rap Back programs, FMDC will receive notification if a new arrest is reported for an employee whose fingerprints have been submitted for FMDC after August 28, 2018. If the employee is performing work on a State contract at the time of the arrest notification, FMDC will request and receive the employee's updated criminal history records. If the employee is no longer performing work on a State contract, FMDC will not obtain updated criminal records.
6. Pursuant to section 43.540, RSMo, the Missouri State Highway Patrol will provide the results of the employee's background check directly to FMDC. FMDC may NOT release the results of a background check to the Contractor or provide the Contractor any information obtained from a background check, either verbally or in writing. FMDC will notify the Contractor only whether an employee is approved to work on State property.

Each employee who submits fingerprints to the Missouri State Highway Patrol has a right to obtain a copy of the results of his or her background check. The employee may challenge the accuracy and completeness of the information contained in a background check report and obtain a determination from the Missouri State Highway Patrol and/or the FBI regarding the validity of such challenge prior to FMDC making a final decision about his or her eligibility to perform work under a State contract.

7. The Contractor shall notify FMDC if an employee is terminated or resigns from employment with the Contractor. If the Contractor does not anticipate performing work on a State contract in the future, the Contractor may request that FMDC remove its employees from the Rap Back programs. However, if removed from the Rap Back programs, employees will be required to submit new fingerprints should the contractor be awarded another State contract.
8. Upon award of a Contract, the Contractor should contact FMDC to determine if its employees need to provide a new background check. If a Contractor's employee has previously submitted a fingerprint background check to FMDC as part of the Missouri and National Rap Back programs, the employee may not need to submit another fingerprint search for a period of three to six years, depending upon the circumstances. The Contractor understands and agrees that FMDC may require more frequent background checks without providing any explanation to the Contractor. The fact that an additional background check is requested by FMDC does not indicate that the employee has a criminal record.

### **3.4 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.

END OF SECTION 013513.28

## **SECTION 015000 – 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, the 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. Gypsum Wallboard: Provide gypsum wallboard on interior walls of temporary offices.
- D. Roofing Materials: Provide UL Class A standard-weight asphalt shingles or UL Class C mineral-surfaced roll roofing on roofs of job-built temporary office, shops, and shed.
- E. Paint: Comply with requirements of Division 9 Section "Painting".
1. For job-built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
  2. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer.
  3. For interior walls of temporary offices, provide two (2) quarts interior latex-flat wall paint.
- F. 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.
- G. Water: Provide potable water approved by local health authorities.
- H. Open-Mesh Fencing: Provide 0.120" (3mm) thick, galvanized 2" (50mm) chainlink fabric fencing 6' (2m) high with galvanized barbed-wire top strand and 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 Contract Change.

- 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: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear.
1. Install electric power service underground, except where overhead service must be used.
  2. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125V, AC 20ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- D. Temporary Telephones: Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities.
1. Telephone Lines: Provide telephone lines for the following:
    - a. Where an office has more than two (2) occupants, install a telephone for each additional occupant or pair of occupants.
    - b. Provide a dedicated telephone for a fax machine in the field office.
    - c. Provide a separate line for the Owner's use.
  2. At each telephone, post a list of important telephone numbers.
- E. 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.
- F. 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.
- G. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.
1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45°F to 55°F (7°C to 13°C).

- 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: If covered storage is required, install storage sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere onsite.
- D. Storage Facilities: Limited areas for storage of building materials are available onsite. Available storage areas are shown on the drawings. The Contractor shall provide his own security. Specific locations for storage and craning operations will be discussed at the Pre-Bid Meeting and the Pre-Construction Meeting.
- E. 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. Paving: Comply with Division 2 Section "Hot-Mixed Asphalt Paving" for construction and maintenance of temporary paving.
  - 2. Coordinate temporary paving development with subgrade grading, compaction, installation and stabilization of subbase, and installation of base and finish courses of permanent paving.
  - 3. 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.
  - 4. Delay installation of the final course of permanent asphalt concrete paving until immediately before Substantial Completion. Coordinate with weather conditions to avoid unsatisfactory results.
  - 5. Extend temporary paving in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration, and supervision.

- F. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.
- G. 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.
- H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
  - 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and materials drying or curing requirements to avoid dangerous conditions and effects.
  - 2. Install tarpaulins securely with incombustible wood framing and other materials. Close openings of 25SqFt (2.3SqM) or less with plywood or similar materials.
  - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  - 4. Where temporary wood or plywood enclosure exceeds 100SqFt (9.2SqM) in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.
- I. 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.
- J. 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.
- K. Temporary Exterior Lighting: Install exterior yard and sign lights so signs are visible when Work is being performed.
- L. 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. 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. 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.
- C. 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.
- D. 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.
- E. 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 air filters and clean inside of ductwork and housing.
  - b. Replace significantly worn parts and parts subject to unusual operating conditions.
  - c. Replace lamps burned out or noticeably dimmed by hours of use.

**END OF SECTION 015000**

## **SECTION 017400 – 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 impeding 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.
4. Following the installation of finish floor materials, clean the finish floor daily while work is being performed in the space in which finish materials have been installed. "Clean" for the purposes of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Construction Representative, may be injurious to the finish of the finish floor material.

### 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. Vacuum clean carpet and similar soft surfaces removing debris and excess nap. Shampoo, if required.
  10. Clean transparent material, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-

obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

11. Remove labels that are not permanent labels.
  12. 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.
  13. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  14. Clean plumbing fixtures to a sanitary condition free of stains, including stains resulting from water exposure.
  15. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  16. Clean ducts, blowers, and coils if units were operated without filters during construction
  17. Clean food-service equipment to a sanitary condition, ready and acceptable for its intended use.
  18. 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.
  19. Leave the Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests. Comply with regulations of local authorities.
- D. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.
- E. 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 017400**

## SECTION 033000- CAST-IN-PLACE CONCRETE

### 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.
- B. See the notes sheet on the structural plans for related specifications and required shop drawings and deferred submittals.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.
  - 2. All Civil and Structural plan sheets.
- B. Related Requirements:
  - 1. Section 312000 "Earth Moving" for drainage fill under slabs-on-ground.
  - 2. Sheet S100 for Products and Execution.

#### 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each of the following.
  - 1. Portland cement.
  - 2. Fly ash.
  - 3. Slag cement.
  - 4. Blended hydraulic cement.
  - 5. Performance-based hydraulic cement
  - 6. Aggregates.
  - 7. Admixtures:
    - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
  - 8. Vapor retarders.
  - 9. Floor and slab treatments.
  - 10. Liquid floor treatments.
  - 11. Curing materials.
  - 12. Joint fillers.

13. Repair materials.
- B. Design Mixtures: For each concrete mixture, include the following:
1. Mixture identification.
  2. Minimum 28-day compressive strength.
  3. Durability exposure class.
  4. Maximum w/cm.
  5. Calculated equilibrium unit weight, for lightweight concrete.
  6. Slump limit.
  7. Air content.
  8. Nominal maximum aggregate size.
  9. Steel-fiber reinforcement content.
  10. Synthetic micro-fiber content.
  11. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
  12. Intended placement method.
  13. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Shop Drawings:
1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
    - a. Location of construction joints is subject to approval of the Engineer.
  2. Contractor to provide engineered foundation and slab, designed for loads created by Owner furnished pavilion, sealed by a professional engineer registered in the State of Missouri. Drawing to be submitted to Designer/Owner.
- D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:
1. Concrete Class designation.
  2. Location within Project.
  3. Exposure Class designation.
  4. Formed Surface Finish designation and final finish.
  5. Final finish for floors.
  6. Curing process.
  7. Floor treatment if any.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For the following:
1. Installer: Include copies of applicable ACI certificates.
  2. Ready-mixed concrete manufacturer.
  3. Testing agency: Include copies of applicable ACI certificates.
- B. Material Certificates: For each of the following, signed by manufacturers:
1. Cementitious materials.
  2. Admixtures.
  3. Curing compounds.
  4. Floor and slab treatments.
  5. Bonding agents.
  6. Adhesives.
  7. Vapor retarders.
  8. Semirigid joint filler.

9. Joint-filler strips.
  10. Repair materials.
- C. Material Test Reports: For the following, from a qualified testing agency:
1. Portland cement.
  2. Fly ash.
  3. Slag cement.
  4. Blended hydraulic cement.
  5. Performance-based hydraulic cement.
  6. Aggregates.
  7. Admixtures:
- D. Research Reports:
1. For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
  2. For sheet vapor retarder/termite barrier, showing compliance with ICCAC380.
- E. Preconstruction Test Reports: For each mix design.
- F. Field quality-control reports.

## 1.6 **QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete.
1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.
- B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
1. Personnel performing laboratory tests shall be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
- D. Field Quality Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
1. Personnel conducting field tests shall be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

## 1.7 **PRECONSTRUCTION TESTING**

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.

1. Include the following information in each test report:

- a. Admixture dosage rates.
- b. Slump.
- c. Air content.
- d. Seven-day compressive strength.
- e. 28-day compressive strength.
- f. Permeability.

## **1.8 DELIVERY, STORAGE, AND HANDLING**

A. Comply with ASTM C94 and ACI 301.

## **1.9 FIELD CONDITIONS**

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.

1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
2. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI301.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F (1.7 deg C), other than reinforcing steel.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95 deg F (35 deg C).
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## **PART 2-PRODUCTS**

**2.1 SEE SHEET S100.**

## **PART 3 – EXECUTION**

**3.1 SEE SHEET S100.**

**END OF SECTION 033000**

## **SECTION 051200 - STRUCTURAL STEEL FRAMING**

### **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. Structural steel.
  - 2. Prefabricated building columns.
- B. Related Sections:
  - 1. Preliminary NUCOR drawings
  - 2. Appendix 2

#### **1.3 DEFINITIONS**

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

#### **1.4 COORDINATION**

- A. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication of structural-steel components.
  - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
  - 2. Include embedment Drawings.
  - 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
  - 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:
  - 1. Power source (constant current or constant voltage).
  - 2. Electrode manufacturer and trade name, for demand critical welds.

#### **1.6 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For Installer, fabricator, shop-painting applicators, professional engineer, and testing agency.
- B. Welding certificates.
- C. Product Test Reports: For the following:
  - 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
  - 2. Shear stud connectors.
- D. Survey of existing conditions.
- E. Source quality-control reports.
- F. Field quality-control and special inspection reports.
- G. Design loads for foundation and anchor design including vertical, horizontal, and lateral loads at each column base.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
  - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
  - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
  - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

## **PART 2-PRODUCTS**

### **2.1 STRUCTURAL-STEEL AND ANCHOR MATERIALS**

- A. **SEE PRELIMINARY NUCOR DRAWINGS**

### **2.2 SOURCE QUALITY CONTROL**

- A. Testing Agency: Contractor will engage a qualified testing agency to perform shop tests and inspections.
  - 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Bolted Connections: Inspect and test shop-bolted connections according to RCSC's

"Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

- C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
  - 1. Liquid Penetrant Inspection: ASTM E 165.
  - 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
  - 3. Ultrasonic Inspection: ASTM E 164.
  - 4. Radiographic Inspection: ASTM E 94.
- D. In addition to visual inspection, test and inspect shop-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
  - 1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
  - 2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.
- E. Prepare test and inspection reports.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
  - 1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

### **3.3 ERECTION**

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC specifications for structural steel buildings.
- B. Baseplates and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
- C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  1. Level and plumb individual members of structure.
- E. Splice members only where indicated.
- F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.
- G. Metal building supplier shall be notified prior to any field modifications. Modifications must be approved by metal building supplier before work is undertaken.

### **3.4 FIELD CONNECTIONS**

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
  2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
  3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

### **3.5 FIELD QUALITY CONTROL**

- A. Special Inspections: Contractor will engage a qualified special inspector to perform the following special inspections:
  1. Verify structural-steel materials and inspect steel frame joint details.
  2. Verify weld materials and inspect welds.
  3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.
- C. Bolted Connections: Inspect and test bolted connections according to RCSC's

"Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

- D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.
1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D 1. 1M and the following inspection procedures, at testing agency's option:
    - a. Liquid Penetrant Inspection: ASTM E 165.
    - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
    - c. Ultrasonic Inspection: ASTM E 164.
    - d. Radiographic Inspection: ASTM E 94.
- E. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1. 1M for stud welding and as follows:
1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
  2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

**END OF SECTION 051200**

## **SECTION 099113 - EXTERIOR PAINTING**

### **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 surface preparation and the application of paint systems on the following or other noted exterior substrates:
  - 1. Steel and iron beam, columns, bollards, misc. steel, etc.
- B. Related Requirements:
  - 1. Division 5 Sections for shop priming of metal substrates.
  - 2. Paint all exposed steel columns and framing.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches square.
  - 2. Apply coats on Samples in steps to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

#### **1.4 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1/2 gallon of each material and color applied.

## **1.5 QUALITY ASSURANCE**

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

## **1.7 FIELD CONDITIONS**

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Products: Subject to compliance with requirements, provide product or equal approved products listed in the Exterior Painting Schedule for the paint category indicated.

### **2.2 PAINT, GENERAL**

- A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. Colors: Sandstone Red – as selected by owner.

### **2.3 SOURCE QUALITY CONTROL**

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Application of coating indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if necessary. Clean using methods recommended in writing by paint manufacturer.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

### **3.3 APPLICATION**

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
1. Use applicators and techniques suited for paint and substrate indicated.
  2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
  3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
  4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### **3.4 FIELD QUALITY CONTROL**

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### **3.5 CLEANING AND PROTECTION**

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### **3.6 EXTERIOR PAINTING SCHEDULE**

- A. Steel and Iron Substrates:
  - 1. Polyurethane Coating System:
    - a. Prime Coat: Shop primer specified in Section where substrate is specified. Touch- up as required before finish coats.
    - b. Prime Coat: Equal to the following:
      - 1) Sherwin-Williams (SW) Pro Industrial Pro-Cryl Universal Primer, B66-310 Series.
    - c. 1st Coat: Equal to the following:
      - 1) Sherwin-Williams (SW) Pro Industrial Urethane Alkyd Enamel, B54-150 series.
    - d. Topcoat: Equal to the following:
      - 1) Sherwin-Williams (SW) Pro Industrial Urethane Alkyd Enamel, B54-150 series.

**END OF SECTION 099113**

## SECTION 133419 - METAL BUILDING SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Structural-steel framing.
  2. Secondary framing for openings, facia & soffit support, etc.
  3. Metal standing-seam roof panels.
  4. Metal soffit panels.
  5. Snow/Ice guards along canopy area.
  6. Flashings, gutters, downspouts, etc.
  7. Accessories.
- B. Related Requirements:
1. Division 3 Section; "Cast-in-Place Concrete," for foundations and anchor bolts.
  2. Division 22 Sections; "Plumbing" for location of required openings and/or supports in walls and roof for mechanical systems, including but not limited to equipment, piping, etc.
- C. See the notes sheet on the structural plans for related specifications and required shop drawings and deferred submittals.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of metal building system component. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
1. Metal standing seam roof system, including panels, panel attachments, sealants, mastics, trim, flashing, etc.
  2. Thermal insulation and vapor retarder facings.
  3. Snow/Ice Guards.
  4. Accessories.
- B. Shop Drawings: For metal building system components. Include permit plans, elevations, sections, details, and attachments to other work.
1. Anchor-Bolt Plans: Submit anchor-bolt plans and templates before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
  2. Structural-Framing Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
    - a. Show roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
    - b. Flashing and trim.
    - c. Gutters.
    - d. Downspouts.
- C. Samples: For each type of exposed finish required.

- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of sizes indicated below:
  - 1. Vapor-Retarder Facings: Nominal 6-inch- square Samples.
  - 2. Accessories: Nominal 12-inch- long Samples for each type of accessory.
- E. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

### 1.3 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Metal Building System Certificates: For each type of metal building system, from manufacturer.
  - 1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:
    - a. Name and location of Project.
    - b. Order number.
    - c. Name of manufacturer.
    - d. Name of Contractor.
    - e. Building dimensions including width, length, height, and roof slope.
    - f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
    - g. Governing building code and year of edition.
    - h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
    - 1. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
    - J. Building-Use Category: Indicate category of building use and its effect on load importance factors.
    - k. AISC Certification for Category **MB**: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

- C. Material test reports.
- D. Source quality-control reports.
- E. Field quality-control reports.
- F. Warranties: Sample of special warranties.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Maintenance data.

#### **1.5 QUALITY ASSURANCE**

- A. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code - Steel."
  - 2. AWS D1.3, "Structural Welding Code - Sheet Steel."
- C. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.
- D. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.
- E. Preinstallation Conference: Conduct conference at Project site

#### **1.6 WARRANTY**

- A. General Warranty: Special warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Weathertight System Warranty: Submit a written warranty, signed by roofing system manufacturer agreeing to promptly repair leaks in the complete system including roof membrane and flashings, penetrations, curbs, accessories, etc., resulting from defects in materials or workmanship for the warranty period listed below. The manufacturer's liability shall not exceed the original installed cost of the roofing system. Indicate by letter that "All roofing components contained in the system proposed are approved and compatible with the warranty requirements of the roof system as specified, and that the warranty specified will be issued at completion of the project if system is installed as designed."
  - 1. Warranty Period: 20 years.
  - 2. The State of Missouri is prohibited by law from entering into binding arbitration. No warranty shall be submitted with any arbitration clause.
- C. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering roofing, insulation, fasteners, flash in gs,

penetrations, curbs, accessories, etc., if any, for the following warranty period:

1. Warranty Period: 5 years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **SEE APPENDIX 2 FOR OWNER SUPPLIED METAL BUILDING SYSTEM.**

## **PART 3 - EXECUTION**

### **3.1 ERECTION OF STRUCTURAL FRAMING**

- A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond- reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  1. Set plates for structural members on wedges, shims, or setting nuts as required.
  2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
  3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  1. Level and plumb individual members of structure.
  2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
- F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.
  1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt

type and joint type specified.

- a. Joint Type: Snug tightened or pretensioned.
- G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.
1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
  2. Locate and space wall girts to suit openings such as doors and windows.
  3. Locate canopy and soffit framing as required.
  4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
- H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
1. Tighten rod and cable bracing to avoid sag.
  2. Locate interior end-bay bracing only where indicated.
- I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including future equipment installation. Securely attach to structural framing.
- J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

### **3.2 METAL ROOF PANEL INSTALLATION**

- A. General: Use NUCOR provided metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
1. Install ridge caps as metal roof panel work proceeds.
  2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint, at location and spacing and with fasteners recommended by manufacturer.
1. Provided Standing Seam 360 panel will require the use of a seam starter/finisher and electric seamer. Seamer tools are not provided by American Building Company (NUCOR).
- C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures

### **3.3 ACCESSORY INSTALLATION**

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
  3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
  2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- D. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.
1. Provide elbows at base of downspouts to direct water away from building.
  2. Tie downspouts to underground drainage system indicated.
- E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

### **3.4 FIELD QUALITY CONTROL**

- A. Special Inspections: Contractor will engage a qualified special inspector to perform special inspections.
- B. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.
- C. Tests and Inspections:
  1. High-Strength, Field-Bolted Connections: Connections shall be tested and

inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections : In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D 1.1 /D 1.1 M and the following inspection procedures, at inspector's option:
  - a. Liquid Penetrant Inspection: ASTM E 165.
  - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
  - c. Ultrasonic Inspection: ASTM E 164.
  - d. Radiographic Inspection: ASTM E 94.
- D. Product will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

### 3.5 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS <NAME> of <ADDRESS>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  1. Owner:
  2. Address:
  3. Building Name/Type:
  4. Address:
  5. Area of Work:
  6. Acceptance Date:
  7. Warranty Period:
  8. Expiration Date:
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
  1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. lightning;
    - b. peak gust wind speed exceeding 120 mph;
    - c. fire;
    - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    - f. vapor condensation on bottom of roofing;
    - g. Roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof has been paid by Owner or by another responsible party so designated.
3. The Roofing Installer is responsible for damage to work covered by this Warranty,
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void, unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation.
5. The Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
6. This Warranty is recognized to be the installation warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents and to coordinate the Manufacturer's warranty, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this<DAY>day of <MONTH>, 20<YEAR>.

1. Authorized Signature:
2. Name:
3. Title:

**END OF SECTION 133419**

## **SECTION 221005-PLUMBING PIPING**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
  - 1. Sanitary sewer.
  - 2. Domestic water.
  - 3. Pipe hangers and supports.
  - 4. Valves.
  - 5. Water pressure reducing valves.

#### **1.2 SUBMITTALS**

- A. See Section 013000, for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Project Record Documents: Record actual locations of piping and valves.

#### **1.3 QUALITY ASSURANCE**

- A. Perform work in accordance with applicable codes.
- B. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

#### **1.5 FIELD CONDITIONS**

- A. Do not install underground piping when bedding is wet or frozen.

### **PART 2 PRODUCTS (Not Applicable)**

### **PART3 EXECUTION**

#### **3.1 See Sheet P-100.**

### **END OF SECTION 221005**

## **SECTION 311000 - SITE CLEARING**

### **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.
- B. Related Sections:
  - 1. Division 01 Section "Construction Facilities and Temporary Controls" for temporary utility services, construction and support facilities, security and protection facilities, and temporary erosion control measures.

#### **1.2 SUMMARY**

- A. Removing existing vegetation.
- B. Clearing and grubbing.
- C. Stripping and stockpiling topsoil.
- D. Removing above- and below-grade site improvements.
- E. Disconnecting, capping or sealing, and removing site utilities.
- F. Temporary erosion- and sedimentation-control measures.

#### **1.3 DEFINITIONS**

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.
- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
- E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and indicated on Drawings.
- F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

## **1.4 MATERIAL OWNERSHIP**

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

## **1.5 SUBMITTALS**

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
  - 1. Use sufficiently detailed photographs or videotape.
  - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

## **1.6 PROJECT CONDITIONS**

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
  - 1. Do not close or obstruct streets or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify Missouri One Call for area where Project is located before site clearing.
  - 1. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.
- C. The following practices are prohibited within protection zones:
  - 1. Storage of construction materials, debris, or excavated material.
  - 2. Parking vehicles or equipment.
  - 3. Foot traffic.
  - 4. Erection of sheds or structures.
  - 5. Impoundment of water.
  - 6. Excavation or other digging unless otherwise indicated.
  - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
  - 8. Do not direct vehicle or equipment exhaust towards protection zones.
  - 9. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.
- D. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

## **PART 2-PRODUCTS**

### **2.1 MATERIALS**

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."
  - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

## **PART 3- EXECUTION**

### **3.1 PREPARATION**

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain.
- C. Protect existing site improvements to remain from damage during construction .
- D. Restore damaged improvements to their original condition, as acceptable to Owner.

### **3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- A. Provide temporary erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways , according to erosion-control Drawings and requirements of authorities having jurisdiction.
  - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
  - 2. Inspect, maintain, and repair erosion-control measures during construction until permanent vegetation has been established .
  - 3. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### **3.3 TREE AND PLANT PROTECTION**

- A. General: Protect trees and plants remaining on-site according to contract drawings.
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by the Owner.

### **3.4 EXISTING UTILITIES**

- A. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Arrange with utility companies to shut off indicated utilities .
- C. Excavate for and remove underground utilities indicated to be removed .
- D. Removal of underground utilities is included in Division 2 Sections.

### **3.5 CLEARING AND GRUBBING**

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
  - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  - 2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
- B. Use only hand methods for grubbing within protection zones.
  - 1. Chip removed tree branches and dispose of off-site.
  - 2. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
    - a. Place fill material in horizontal layers not exceeding a loose depth of 8 inches and compact each layer to a density equal to adjacent original ground.
- C. Use only low-impact methods for tree removal within boundaries of the proposed onsite wastewater absorption field and the alternate absorption field.
  - 1. These trees shall be removed with root balls in place in order to minimize soil disturbance.

### **3.6 TOPSOIL STRIPPING**

- A. Remove sod and grass before stripping topsoil.
  - 1. Strip topsoil to depth of 4 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 2. Remove subsoil and non-soil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
  - 3. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
    - a. Limit height of topsoil stockpiles to 72 inches.
    - b. Do not stockpile topsoil within protection zones.
    - c. Stockpile surplus topsoil to allow for re-spreading deeper topsoil.

### **3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
  - 1. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

**END OF SECTION 311000**

## **SECTION 312000 - EARTH MOVING**

### **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.
- B. Related Sections
  - 1. Section 312500 - "Erosion Control"
  - 2. Appendix 1 – Geotechnical Engineering Report
- C. Missouri Standard Specifications for Highway Construction, 2019 Edition

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Preparing subgrades for slabs-on-grade, walks, pavements, grasses, and plants.
  - 2. Excavating and backfilling for buildings and structures.
  - 3. Drainage course for concrete slabs-on-grade.
  - 4. Subbase course for concrete walks and pavements.
  - 5. Subsurface drainage backfill for floor slabs, walls, and trenches.
  - 6. Excavating and backfilling trenches for utilities and pits for buried utility structures.

#### **1.3 DEFINITIONS**

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
  - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
  - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subbase course and Portland cement concrete and surface course.
- C. Surface Course: Aggregate layer placed over the base course during crushed stone paving.
- D. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- E. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- F. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

- G. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
  - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer.
  - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- H. Fill: Soil materials used to raise existing grades.
- I. Rock: Rock material in beds, ledges, un-stratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
  - 1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 36-inch wide, maximum, short-tip-radius rock bucket; rated at not less than 120-hp flywheel power and stick-crowd force of not less than 20,000 lbf with extra-long reach boom; measured according to SAE J-1179.
- J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- K. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- L. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- M. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

#### **1.4 SUBMITTALS**

- A. Product Data: For each type of the following manufactured products required :
  - 1. Controlled low-strength material, including design mixture.
- B. Qualification Data: For qualified testing agency.
- C. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
  2. Laboratory compaction curve according to ASTM D 698.
    - a. On-Site soils samples shall be collected by the contractor and sent to the laboratory for testing within 5 business days of notice to proceed and testing results should be provided to the Owner and Engineer within 10 business days of notice to proceed.
- D. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.

## **1.5 QUALITY ASSURANCE**

- A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.
- B. Pre-excavation Conference: Conduct conference at project site.

## **1.6 PROJECT CONDITIONS**

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
  1. Do not close or obstruct streets or other adjacent occupied facilities without permission from Owner and authorities having jurisdiction.
  2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Do not disturb adjacent properties.
- C. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from the data.
  1. Make additional test borings and conduct other exploratory operations necessary for excavation support and protection.
  2. The geotechnical report is included elsewhere in the Project Manual.
- D. Utility Locator Service: Notify Missouri One Call for area where Project is located before beginning earth moving operations.
- E. Do not commence earth moving operations until temporary erosion- and sedimentation-control measures, and plant-protection measures as specified in Section "Erosion and Sedimentation Controls" and Section "Temporary Facilities and Controls" are in place.
- F. Do not direct vehicle or equipment exhaust towards protection zones.
- G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

## **PART 2-PRODUCTS**

### **SEE APPENDIX 1: GEOTECHNICAL ENGINEERING REPORT**

## **PART 3- EXECUTION**

### **3.1 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

### **3.2 DEWATERING**

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

### **3.3 EXPLOSIVES**

- A. Explosives: Do not use explosives.

### **3.4 EXCAVATION**

- A. See Earthwork section on sheet S100 and Geotechnical Engineering Report.

### **3.5 UNAUTHORIZED EXCAVATION**

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Engineer.
  - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

### **3.6 STORAGE OF SOIL MATERIALS**

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### **3.7 BACKFILL**

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, sub drainage, damp roofing, waterproofing, and perimeter insulation.
  - 2. Surveying locations of underground utilities for Record Documents.
  - 3. Testing and inspecting underground utilities.
  - 4. Removing concrete formwork.
  - 5. Removing trash and debris.
  - 6. Removing temporary shoring and bracing, and sheeting.
  - 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

### **3.8 UTILITY TRENCH BACKFILL**

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Place drainage aggregate over bedding course to a minimum of six inches above storm water pipes and choke the surface with base aggregate; remaining trench should be backfilled with soil fill.
- D. Trenches under Footings: Backfill trenches excavated under footings and within 24 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03.
- E. Backfill voids with satisfactory soil while removing shoring and bracing.
- F. Place and compact initial backfill, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
  - 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- G. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the pipe or conduit. Coordinate backfilling with utilities testing.
- H. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- I. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.
- J. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under Portland cement pavements and slabs.

### **3.9 SOIL FILL**

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 5 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  - 1. Under grass and planted areas, use satisfactory soil material.
  - 2. Under walks and pavements, use satisfactory soil material.
  - 3. Under steps and ramps, use engineered fill.
  - 4. Under building slabs, use engineered fill.
  - 5. Under footings and foundations, use engineered fill.
- C. Place all fill on subgrades free of mud, frost, snow, or ice.

### **3.10 SOIL MOISTURE CONTROL**

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### **3.11 COMPACTION OF SOIL BACKFILLS AND FILLS**

- A. See Geotechnical report for compaction recommendations.

### **3.12 GRADING**

- A. See Geotechnical report for Grading and Drainage recommendations.

### **3.13 FIELD QUALITY CONTROL**

- A. Special Inspections: Contractor will engage a qualified special inspector to perform the following special inspections:
  - 1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
  - 2. Determine that fill material and maximum lift thickness comply with requirements .
  - 3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
- B. Testing Agency: Contractor will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

- D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities . Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.
- E. When testing agency reports that sub grades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; re-compact and retest until specified compaction is obtained.

### **3.14 PROTECTION**

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  - 1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and re-compact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### **3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash , and debris , and legally dispose of them off Owner's property.

**END OF SECTION 312000**

## **SECTION 312500 - EROSION CONTROL**

### **PART I -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.
- B. Related Sections
  - 1. Section 312000 "Earth Moving"
  - 2. Appendix 1 – Geotechnical Engineering Report
- C. Related Documents
  - 1. Kansas City Metropolitan Chapter, American Public Works Association, Standard Specifications & Design Criteria, Section 5600
  - 2. Missouri Standard Specifications for Highway Construction , 2019 Edition

#### **1.2 SUMMARY**

- A. Installation of temporary water pollution control measures to prevent discharge of pollutants such as chemicals, fuels, oils, lubricants, bitumen, sealants, or other harmful material from the project.
- B. The Contractor shall manage his operations to control water pollution **in** accordance with this specification and applicable state regulations. Construction of permanent drainage facilities and other contract work, contributing to control of erosion, shall be scheduled at the earliest practicable time.
- C. The Contractor shall furnish, install, maintain, and remove temporary erosion control measures. The Contractor shall prevent silt or polluted storm water discharge from the site.
- D. The Owner may require installation of additional erosion control facilities, by the Contractor, if in the sole opinion of the Owner's Representative, the Contractor's efforts are inadequate.

#### **1.3 DEFINITIONS**

- A. General Operating Permit: The General Operating Permit for storm water discharges associated with construction activity (Land Disturbance General Permit No. MO-RI 00038) issues to FMDC as a blanket permit by the Missouri Department of Natural Resources, Water Pollution Control Branch.
- B. Storm Water Pollution Prevention Plan (SWPPP): A plan required by the General Permit that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants.
- C. Best Management Practices (BMP): Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

- D. Temporary Seeding and Mulching: Placement of a fast establishing ground cover, mulch, or temporary erosion control mat to reduce erosion in areas that have been disturbed and expected to be re-disturbed.
- E. Straw Bales: Standard agricultural bales used to filter the flow of water; trap and deposit sediment; and/or divert water.
- F. Silt Fence: A geotextile barrier fence to contain sediment by removing suspended particles from water passing through the fence.
- G. Sediment Removal: Removal of accumulated sediment to restore the efficiency of sediment control features.

## 1.4 SUBMITTALS

- A. The Contractor shall submit a detailed Erosion Control Plan and coordinate any field modifications to the Erosion Control Plan for review and approval by the Owner's Representative. Approval of the plan changes does not relieve the Contractor of his contractual responsibility to prevent the discharge of pollutants into the receiving drainage ways.
- B. Product Data:
  - 1. Fertilizer and Seed Mixture.
  - 2. Permanent Turf Reinforcement Mat.
  - 3. Erosion Control Blankets.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Seeding:
  - 1. Permanent
    - a. One of the following seed varieties:
      - i. Cody Buffalo Grass.
      - ii. Sundancer Buffalo Grass.
    - b. Commercial pre-bagged seed may be substituted for the seeding mixture as stated above at the discretion of the owner's representative. The seed mixture shall be a mixture of tall fescue and annuals similar to the mixture above. The owner's representative may require over seeding of the commercial mixture
  - 2. Temporary
    - a. December 1 to March 1: annual rye, oats.
    - b. March 1 to December 1: annual rye or wheat.
  - 3. For ground surfaces without turf reinforcement mats or erosion control blankets, mulch for seeding shall be wheat straw.
  - 4. Fertilizer shall consist of the following:
    - a. Nitrogen (N), phosphorous acid (P2O5), and potash (K2O)

- b. Commercial pre-bagged fertilizer may be substituted for the fertilizer mixture as stated above at the discretion of the owner's representative. The fertilizer mixture shall be a mixture of nitrogen, phosphorous, and potassium. The owner's representative may require additional fertilizer over the commercial mixture.
  
- B. Permanent Turf Reinforcement Mat (TRM): The TRM shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into permanent three-dimensional turf reinforcement matting while complying with the following, minimum values measured per test methods referenced:
  - 1. Requirements:
    - a. Mass/Unit Area: 8.0 oz/sy; ASTM 6566.
    - b. Functional Longevity: Permanent.
  - 2. Available Products:
    - a. North American Green VMax SC250.
    - b. American Excelsior Company TriNet Straw/Coconut.
    - c. East Coast Erosion ECSC-3.
  
- C. Single Net Erosion Control Blankets (ECB): The ECB shall be a machine-produced bio/photodegradable mat of 100% agricultural straw with top netting and a functional longevity no less than 12 months.
  - 1. Requirements:
    - a. Mass/Unit Area: 8.0 oz/sy; ASTM D6475.
    - b. Functional Longevity: 12 months.
  - 2. Available Products:
    - a. North American Green EroNet S75.
    - b. American Excelsior Company Premier Straw Single Net.
    - c. Propex Landlok S1.
  
- D. Double Net Erosion Control Blankets (ECB): The ECB shall be a machine-produced bio/photodegradable mat of 100% agricultural straw with top and bottom netting and a functional longevity no less than 12 months.
  - 1. Requirements:
    - a. Mass/Unit Area: 8.0 oz/sy; ASTM D6475.
    - b. Functional Longevity: 12 months.
  - 2. Available Products:
    - a. North American Green EroNet S150.
    - b. American Excelsior Company Premier Straw Double Net.
    - c. Propex Landlok S2.
  
- E. Erosion Control Barriers:
  - 1. Straw Bale Erosion Barrier.

- a. Straw Bales
    - 1. Straw bales shall be wheat straw with a minimum height of 20 inches in the smallest dimension
    - ii. Straw bales shall have a minimum of 2-bindings intact
  - b. Posts:
    - 1. Wood, steel or synthetic posts may be used.
    - ii. Posts shall have a minimum length of 36 inches
    - m. Posts shall have sufficient strength to resist damage during installation and applied loads.
2. Wire supported and self-supporting silt fence.
- a. Geotextile Fabric
    - 1. Fibers used in geotextiles shall consist of long chain synthetic polymers, composed of at least 85 percent by weight poly ole fins, polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvages.
    - 11. The geotextile shall be free of any treatment or coating which might adversely alter its physical properties after installation.
    - iii. Geotextile shall be furnished in 36" wide rolls.
    - 1v. Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure.
    - v. Each roll shall be labeled or tagged to provide product identification sufficient for inventory.
    - v1. Rolls shall be stored in a manner, which protects them from the elements.
  - b. Posts: Wood, steel, or synthetic posts may be used. Posts shall have a minimum length of 36 inches, including 16 inches minimum embedment depth, and be placed no greater than 6 feet apart. Posts shall have sufficient strength to resist damage during installation and to support applied loads.
  - c. Support Fence: Wire or other support fence shall be at least 24 inches high and strong enough to support applied loads.
  - d. Pre-fabricated Fence: Pre-fabricated fence systems may be used provided they meet all of the above material requirements.

## **PART 3 -EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

- A. The Owner's Representative may limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, or fill operations.

- B. The Owner's Representative may direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams, other water courses, lakes, ponds, or other areas of water impoundment. Work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, use of temporary mulches, seeding or other control devices or methods to control erosion.
- C. The Contractor shall incorporate permanent erosion control features at the earliest practicable time.
- D. The Contractor shall provide temporary pollution control measures needed to control erosion during normal construction practices to the Owner.
- E. Contractor shall designate trained and knowledgeable personnel to coordinate all SWPPP activities, and identify those personnel to the Owner's Representative during construction.
- F. The SWPPP is a living document. As the conditions at the site change, the SWPPP shall be updated by the Contractor.
- G. The SWPPP is subject to random inspection by the Owner. The SWPPP shall be kept up to date by the Contractor and available for inspection at any time.
- H. If Contractor determines that any BMP should need modification, the changes shall be dated and documented, and all necessary field changes performed.

### **3.2 LIMITATION OF DISTURBED AREA**

- A. The Contractor's operations shall be scheduled to install permanent erosion control features immediately after earth moving.

The Owner's Representative may limit the area of clearing and grubbing , excavation, borrow, and embankment operations commensurate with the Contractor' s capability and current progress in completing the finish grading, mulching, seeding, and other such permanent pollution control measures.

- B. The Contractor shall respond to seasonal variations. If required by weather, temporary erosion control measures shall be taken immediately.

### **3.3 BORROW AND WASTE AREAS**

- A. Material pits other than commercially operated sources and material spoil areas shall be subject to pollution control measures of this specification. An offsite location does not relieve the Contractor of his contractual obligation to prevent the introduction of silt or other pollutants into receiving waterways.

### **3.4 CONFLICT WITH FEDERAL, STATE OR LOCAL LAWS, RULES OR REGULATIONS**

- A. In case of conflict between these requirements and pollution control laws, rules, or regulations or other federal, state or local agencies, the more restrictive laws, rules, or regulations shall apply.

### **3.5 SEEDING AND MULCHING**

- A. General
  - 1. This item is applicable to all projects.

2. Seeding and/or mulching shall be a continuous operation on all cut slopes, fill slopes, and borrow pits during the construction process. All disturbed areas shall be seeded and mulched within five (5) working days after the final construction activity or fourteen (14) days of inactivity in all locations

B. Construction Requirements:

1. Permanent seeding mixture may be one of the following:
  - a. Sundancer Buffalo Grass: 100 lbs pure live seed per acre
  - b. Cody Buffalo Grass: 100 lbs pure live seed per acre
2. Permanent fertilizer and lime mixture:
  - a. Effective neutralizing material: 2000 lbs per acre
  - b. Nitrogen (N): 80 lbs per acre
  - c. Phosphorous Acid (P<sub>2</sub>O<sub>5</sub>): 320 lbs per acre
  - d. Potash (K<sub>2</sub>O): 80 lbs per acre
3. For ground surfaces without turf reinforcement mats or erosion control blankets, permanent mulching shall be wheat straw applied uniformly to effectively cover ground surface and prevent erosion from precipitation events.
4. Temporary seeding mixtures and planting season:
  - a. December 1 to March 1: 80 lbs oat grain per acre
  - b. March 1 to December 1: 90 lbs cereal rye or wheat per acre
5. Temporary mulch and fertilizer for seeding:
  - a. Fertilizer shall be applied at the rate specified for permanent seeding.
  - b. Mulch shall be applied in the manner specified for permanent seeding.

### 3.6 ROLLED TURF REINFORCEMENT MATS AND EROSION CONTROL BLANKETS

A. General

1. Install Permanent Turf Reinforcement Mats where indicated on the Drawings.
2. Single Net Erosion Control Blankets to be installed on slopes less steep than 3:1 but steeper than 4:1.
3. Single Net Erosion Control Blankets to be installed **in** channels within firing range floors and in uppermost reach of Drainage Channel 1.
4. Double Net Erosion Control Blankets to be installed on slopes which are 3:1 or steeper.

B. Channel Installation Requirements

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of li me, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the RECPs in a 6 **in.** deep x 6 **in.** wide trench with approximately 12 in. of RECPs extended beyond the upslope portion of the trench. Anchor the RECPs with a row of staples /stakes approximately 12 in. apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. portion of RECPs

back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. apart across the width of the RECPs.

3. Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (shingle style) with a 4 in.-6 in. overlap. Use a double row of staples staggered 4 in. apart and 4 in. on center to secure RECPs.
5. Full-length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12 in. apart in a 6 in. deep x 6 in. wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 2 in.-5 in. (depending on RECP type) and stapled.
7. In high flow channel applications a staple check slot is recommended at 30 to 40 ft. intervals. Use a double row of staples staggered 4 in. apart and 4 in. on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples /stakes approximately 12 in. apart in a 6 in. deep x 6 in. wide trench. Backfill and compact the trench after stapling

#### C. Slope Installation Requirements

1. Prepare soil before installing RECPs, including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6 in. deep x 6 in. wide trench with approximately 12 in. of RECPs extended beyond the upslope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12 in. apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. apart across the width of the RECPs.
3. Roll the RECPs (3A) down or (3B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as recommended by the manufacturer.
4. The edges of parallel RECPs must be stapled with an approximately 2 in.-5 in. overlap depending on the RECP type.
5. Consecutive RECPs spliced down the slope must be end-over-end (shingle style) with an approximate 3 in. overlap. Staple through overlapped area, approximately 12 in. apart across entire RECPs width.

### 3.7 STRAW BALES

#### A. General

1. Install at the bottom of embankment slopes less than 10 feet high to divert runoff from sheet flow and intercept some of the sediment in the sheet flow.

2. Install as ditch checks in small ditches and drainage areas.
  3. Install on the lower side of cleared areas to catch sediment from sheet flow.
- B. General Requirements
1. The Contractor shall install straw bales locations shown on the drawings, around inlets that accept flows containing sediment, and other locations necessary to prevent the discharge of sediment from the site.
  2. Bale construction shall be adequate to handle the stress from hydraulic and sediment loading.
- C. Construction Requirements:
1. Bales of straw shall be utilized to control erosion, trap sediment, and divert runoff.
  2. Excavate a trench a minimum 4 inches deep, I-bale's width, and long enough so all bales reside in the excavated trench.
  3. Place bales end to end so the binding are oriented around the sides, not top to bottom.
  4. Anchor bales by driving 36-inch long, 2-inch by 2-inch stakes through each bale until nearly flush with the top of each bale.
  5. Wedge loose straw into any gapes in the bales.
  6. Backfill and compact excavated soil against the bales to 4-inches above ground level on the upslope side of the bales.
- D. Maintenance
1. The Contractor shall maintain the integrity of the straw bales as long as they are necessary to contain sediment runoff.
  2. The Contractor shall inspect all straw bales immediately after each rainfall and at least daily during prolonged rainfall.
  3. The Contractor shall immediately correct deficiencies.
  4. The Contractor shall make a daily review of the location of straw bales in areas where construction activities have changed the natural contour and drainage runoff to ensure that the straw bales are properly located for effectiveness.
  5. Where a row of straw bales is not adequate to handle the volume of silt or flows are not completely intercepted, additional rows of straw bales shall be installed.
  6. The Contractor shall remove and dispose of sediment deposits when the deposit approaches one half the height of the straw bales.
  7. The straw bales shall remain in place until the upstream surface is stabilized. Upon removal, the Contractor shall remove the straw bales, dispose of excess silt, and restore the disturbed area.

### **3.8 SILT FENCE**

- A. General
1. Install along the toe of fills over 10 feet in height, along the right-of-way line, parallel to streams or around an inlet to prevent the discharge of sediment from the construction site.

- B. General Requirements
1. The Contractor shall install a temporary silt fence in locations shown on the drawings, around inlets that accept flows containing sediment, and other locations necessary to prevent the discharge of sediment from the site.
  2. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading.
- C. Installation
1. The height of the silt fence shall be a minimum of 16 inches but shall not exceed 34 inches above the original ground surface.
  2. The bottom 8 inches of geotextile at the bottom of the fence shall be buried vertically into the ground.
  3. The trench shall be backfilled and the soil compacted over the geotextile. The geotextile shall be spliced together at support posts with a maximum 6-inch overlap.
  4. Post Installation:
    - a. Post spacing shall not exceed 8 feet for wire supported fence installation or 6 feet for self-supported installations.
    - b. Posts shall be driven a minimum of 16 inches into the ground. Where rock is encountered, posts shall be installed in a manner approved by the Owner's Representative.
    - c. Closer spacing, greater embedment depth and/or wider posts shall be used in low areas, soft, or swampy ground to ensure adequate resistance to applied loads.
  5. When support fence is used, the mesh shall be fastened securely to the upstream side of the post.
    - a. The mesh shall extend into the trench a minimum of 2 inches and extend a maximum of 36 inches above the ground surface.
  6. When self-supported fence is used, the geotextile shall be securely fastened to fence posts.
- D. Maintenance
1. The Contractor shall maintain the integrity of silt fences as long as they are necessary to contain sediment runoff.
  2. The Contractor shall inspect all temporary silt fences immediately after each rainfall and at least daily during prolonged rainfall.
  3. The Contractor shall immediately correct deficiencies.
  4. The Contractor shall make a daily review of the location of silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness.
  5. Where a single fence is not adequate to handle the volume of silt or flows are not completely intercepted, additional silt fences shall be installed.
  6. The Contractor shall remove and dispose of sediment deposits when the deposit approaches one half the height of the fence.

7. The silt fence shall remain in place until the upstream surface is stabilized. Upon removal, the Contractor shall remove the silt fence, dispose of excess silt, and restore the disturbed area.

### **3.9 SEDIMENT REMOVAL**

#### **A. General**

1. Sediment deposits shall be removed when:
  - a. The deposits reach approximately one-half the height of a straw bale barrier or silt fence.
  - b. Requested by Owner's Representative.

- B. Sediment removed from erosion control features shall be deposited in a location where it will not erode into construction areas or watercourses.

**END OF SECTION 312500**

## **SECTION 321373 - PAVEMENT JOINT SEALANTS**

### **PART I-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.
- B. Related Sections:
  - 1. Section 033000 "Cast-In-Place Concrete" and all Civil and Structural Plan Sheets
- C. Related Documents:
  - 1. ASTM D 5893 "Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements".

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Cold-applied joint sealants for filling joints in new exposed pavement surfaces and existing pavement surfaces.

#### **1.3 SUBMITTALS**

- A. Product Data: For each joint-sealant product indicated and accessory.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for joint sealants.
- C. Certification: For each joint-sealant product indicated and necessary.

#### **1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each type of joint sealant from single source from single manufacturer.

#### **1.5 PROJECT CONDITIONS**

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

### **2.2 COLD-APPLIED JOINT SEALANTS**

- A. Single-Component, Self-Leveling and Non-Sag, Silicone Joint Sealant for new PCC: ASTM D 5893.
  1. Products: Subject to compliance with requirements, provide one of the following or equal:
    - a. Dow Corning Corporation; 888.
    - b. Dow Corning Corporation; 890-SL.
    - c. Pecora Corporation; 301 NS.
    - d. Pecora Corporation; 300 SL.
  2. Shall be applied to all exposed joints after the concrete pour is complete.

### **2.3 JOINT-SEALANT BACKER MATERIALS**

- A. General: Provide joint-sealant backer materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
- C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.
- D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

### **2.5 PRIMERS**

- A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, where determined appropriate by prior experience, or when inadequate bonding is identified during construction. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

### **3.3 INSTALLATION OF JOINT SEALANTS**

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install joint-sealant backings of kind indicated to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of joint-sealant backings.
  - 2. Do not stretch, twist, puncture, or tear joint-sealant backings.
  - 3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install joint sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place joint sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Non-Sag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
  - 1. Remove excess joint sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.
  - G. Remove and replace all joint sealants failing to meet the criteria listed herein at Contractors expense.

### **3.4 CLEANING**

- A. Clean off excess joint sealant or sealant smears adjacent to joints as the Work progresses, by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### **3.5 PROTECTION**

- A. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

**END OF SECTION 321373**

**APPENDIX 1:**  
**GEOTECHNICAL ENGINEERING REPORT**

Project No.F2001-01  
New Pavilion  
Sedalia, MO



**GEOTECHNICAL ENGINEERING REPORT  
FOR  
CROCKETT ENGINEERING CONSULTANTS**

**STATE FAIR PAVILION  
SEDALIA, MISSOURI**

**OCTOBER 21, 2019**

**Crockett GTL Project Number: G19478**



1000 W Nifong Blvd. - Building 1  
Columbia, Missouri 65203  
(573) 447-0292

October 21, 2019

Crockett Engineering Consultants  
1000 W Nifong Blvd., Building 1  
Columbia, MO 65203

Attn: Mr. Jesse Stephens, P.E.

Re: Geotechnical Engineering Report  
State Fair Pavilion  
Sedalia, Missouri  
Crockett GTL Project Number: G19478

Dear Mr. Stephens:

Crockett Geotechnical - Testing Lab (CGTL) has completed the geotechnical engineering services for the referenced project. This report should be read in its entirety. This report presents the results of our field explorations, laboratory testing, and recommendations for design and construction of the referenced project.

We appreciate the opportunity to be of service and look forward to working with you during the construction phase of this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

A handwritten signature in blue ink, appearing to read "Aaron Grimm".

Aaron Grimm, E.I.T.  
Project Manager

A handwritten signature in blue ink, appearing to read "Eric H. Lidholm".

Eric H. Lidholm, P.E.  
Principal Engineer  
Missouri: E-23265



Enclosures

cc: 1 - Client (.PDF)  
1 - File

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APPENDIX

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- Boring Location Plan
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- Swell Tests

Geotechnical Engineering Report  
State Fair Pavilion  
Sedalia, Missouri  
Crockett GTL Project Number: G19478  
October 21, 2019

## 1 INTRODUCTION

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Crockett Geotechnical - Testing Lab (CGTL) has conducted a geotechnical exploration for the proposed development. The purpose of our exploration was to:

- characterize and evaluate the subsurface conditions,
- provide design and construction recommendations for:
  - subsurface soil conditions
  - groundwater
  - shrink/swell prone soils
  - earthwork
  - foundations
  - floor slabs
  - seismic considerations
  - lateral earth pressures
  - special inspection requirements

## 2 SITE AND PROJECT INFORMATION

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### 2.1 SITE LOCATION AND DESCRIPTION

Item	Description
Location	This project is located within the Missouri State Fairgrounds in Sedalia, Missouri  Specifically, this site is located approximately 550 feet west of the existing Dairy Queen restaurant at 1811 S Limit Ave. in Sedalia, Missouri  A Site Location Map showing the approximate location of this site is included in the Appendix of this report
Approximate GPS Coordinates	38.695722, -93.251841

Item	Description
Existing improvements	Undeveloped yard area
Current ground cover	Mature trees, grasses
Existing topography	Gently sloping with approximately 7 feet of relief on the project site

## 2.2 PROJECT DESCRIPTION

Item	Description
Proposed structure	An 20,000 sq. ft. open air pavilion with approximate dimensions of 100 feet by 200 feet
Building construction	Assumed to be wood and steel framed
Finished floor elevation (FFE)	889.0 feet (provided)
Maximum loads (assumed)	Column Loads: 25 kips Strip Loads: 1.5 klf Floor Loads: 150 psf
Grading	For this project we have assumed site grading to consist of less than 4 feet of cut and fill
Cut and fill slopes	Final slopes are assumed to be no steeper than 3H:1V (Horizontal to Vertical)
Free-standing retaining walls	None
Below grade areas	Stem walls

## 3 SUBSURFACE CONDITIONS

### 3.1 FIELD EXPLORATION AND LABORATORY TESTING

Six (6) borings were drilled for this project at the approximate locations indicated on the Boring Location Plan included in the Appendix of this report. Additional information follows:

Field Exploration	
Boring Locations <sup>1</sup>	Designated by a Crockett GTL geotechnical engineer and staked by the Crockett Engineering survey crew

Field Exploration	
Boring Elevations <sup>1</sup>	Boring elevations were provided by the Crockett Engineering survey crew The elevations were rounded to the nearest ½ foot
Drill Rig	CME45 track-mounted drill rig equipped with 4-inch solid stem augers
Sampling Methods <sup>2</sup>	Representative samples were obtained using thin-walled tube sampling and split-barrel tube sampling procedures
<ol style="list-style-type: none"> <li>1. The location and elevation of the borings should be considered accurate only to the degree implied by the means and methods used to define them.</li> <li>2. A CME automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the standard penetration resistance blow count (N) value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.</li> </ol>	

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with auger cuttings prior to the drill crew leaving the site.

The field logs were prepared by the drill crew. Final logs included with this report represent the engineer's interpretation of the field logs and include modifications based upon laboratory tests and observation made of the samples. Detailed information regarding the material encountered and the results of field sampling and laboratory testing are shown on the Boring Logs included in the Appendix of this report. The descriptions of the soil on the final boring logs are in general accordance with the Unified Soil Classification System which is included in the Appendix of this report.

### 3.2 ENCOUNTERED SUBSURFACE CONDITIONS

From the ground surface each boring encountered approximately 6-inches of topsoil. Topsoil thickness should be expected to vary elsewhere on the site.

Underlying the topsoil was fat clay. The fat clay extended to the borings planned termination depth of about 15 feet. Bedrock was not encountered.

Detailed descriptions of the encountered materials are listed on the individual boring logs included in the Appendix of this report. Strata lines indicate the approximate location of changes in material types. The transition between material types may be gradual.

### 3.3 GROUNDWATER

Groundwater was not encountered in the borings while drilling, at completion of drilling, or for the short duration the borings remained open after the completion of drilling. However, this does not necessarily mean the borings terminated above groundwater or that the water levels summarized above are stable groundwater levels. Due to the low permeability of the soils encountered in the borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole in these materials. Long term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater levels depend on seasonal and climatic variations, and other factors not evident at the time the boring was performed, and may be present at different levels in the future. Therefore, groundwater levels during construction or at other times in the life of the structure may be at different levels than those indicated on the boring logs.

The boreholes were backfilled prior to departing the project site. Groundwater records are indicated on the boring logs included in the Appendix of this report.

## 4 GEOTECHNICAL RECOMMEDATIONS

---

### 4.1 SWELLING SOILS

Soil that has the capability to shrink or swell is present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and at least minor cracking in the structure should be anticipated. The severity of cracking and other cosmetic damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

The procedures for constructing a low volume change zone, as recommended in this report, may not eliminate all future subgrade volume change and resultant floor slab movements,

however, the procedures outlined should significantly reduce the potential for subgrade volume change. Additional reductions in floor slab movements could be achieved by using a thicker low volume change zone. Details regarding this low volume change zone are provided in the Floor Slab section of this report. Any compacted structural fill placed in the upper 36-inches beneath the building areas should meet the requirements for Low Volume Change (LVC) Material which is defined in the Earthwork section of this report.

In addition, all grades must provide effective drainage away from the buildings during and after construction. Water permitted to pond next to the structure can result in greater soil movement and can result in unacceptable structural performance. After building construction and landscaping has been completed, we recommend verifying final grades to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted as necessary, as part of the structure’s maintenance program.

#### 4.1.1 Swell Test Results

Two (2) swell tests were performed on thin-walled tube samples to help evaluate the potential for soil swell. The results of these tests follow:

Swell Test Results <sup>1</sup>				
Boring Number	Sample Number	Sample Depth, ft	Confining Pressure, psf	Measured Swell, %
B-2	S-1	1.5	60	3.0
B-5	S-1	1.5	60	4.9

1. Additional results and details are provided on the One-Dimensional Swell Potential of Cohesive Soils report(s) included in the Appendix of this document

#### 4.1.2 Estimated Swell

A swell estimation technique that uses soil index properties (liquid limit, dry density, and moisture content) was utilized to evaluate the potential for swell of the existing soils at the floor slab on-grade level. Based upon the results of this method, the potential swell of the existing near surface soils is estimated to be on the order of 0.5% to greater than 5.0% and averaged about 3.5%.

#### 4.1.3 Swell Discussion

Literature indicates swell greater than 1.5% is considered high, or critical. Swell less than 0.5% is considered low or non-critical. Swell on the order of 0.5% to 1.5% is considered marginal. Because of the measured and estimated swell potential of the near surface soils, differential

movement of lightly loaded, grade supported structures (i.e. floor slabs) is possible. For this reason we recommend a low volume change (LVC) zone be constructed beneath all at-grade floor slabs.

## 4.2 EARTHWORK

At the completion of stripping and grubbing, we recommend the exposed subgrade be thoroughly evaluated before the start of any fill operations, including placement of low volume change material. We recommend the geotechnical engineer be retained to evaluate the bearing material for the foundations and subgrade soils. Subsurface conditions, as identified by the field and laboratory testing programs have been reviewed and evaluated with respect to the proposed project plans known to us at this time.

### 4.2.1 Site Preparation

All unsuitable material should be removed from the construction areas prior to placing structural fill. After stripping and grubbing, the site should be proofrolled to aid in locating loose or soft areas. Proofrolling can be performed with a loaded tandem axle dump truck. Soft, wet, dry and low-density soil should be removed or be moisture conditioned and recompacted in place as structural fill prior to placing new structural fill.

Where fill is placed on existing slopes steeper than 5H:1V, benches should be cut into the existing slopes prior to fill placement. The benches should have a vertical face height of 1 to 3 feet and should be cut wide enough to accommodate the compaction equipment. We recommend structural fill slopes be overfilled and then cut back to develop an adequately compacted slope face.

### 4.2.2 Structural Fill Requirements

Compacted structural fill should consist of approved materials free of organic matter and debris. Frozen material should not be used and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted for evaluation prior to use.

Structural Fill Material Requirements		
Material Type	USCS Classification	Acceptable Uses
Lean Clay and Clayey Sand	CL & SC (LL<40)	All locations
Lean to Fat Clay	CL-CH (40<LL<50)	>36-inches below slabs on grade unless PI<23
Fat Clay	CH (LL≥50+)	>36-inches below floor slab

Structural Fill Material Requirements	
Low Volume Change Material	<ul style="list-style-type: none"> <li>• Similar to MoDOT Type 1 or 5 crushed limestone aggregate, limestone screenings, or granular material such as sand, gravel or crushed stone containing at least 18% low plasticity fines.</li> <li>• Low plasticity cohesive soil or granular soil having at least 18% low plasticity fines.</li> <li>• Can also consist of chemically treated soil such as hydrated lime, Code-L, etc.</li> </ul>

#### 4.2.3 Structural Fill Compaction Requirements

Structural Fill Compaction Requirements	
Soil Fill Lift Thickness	<ul style="list-style-type: none"> <li>• 9 inches or less when using heavy self-propelled compaction equipment</li> <li>• 6-inches or less when using hand guided or light self-propelled equipment</li> </ul>
Compaction Requirements <sup>1,2</sup>	<p>95% of standard Proctor dry density (ASTM D-698)</p> <ol style="list-style-type: none"> <li>1. We recommend engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.</li> <li>2. As stated within ASTM D698, this procedure is intended for soils with 30% or less material larger than ¾". Accordingly, we recommend full time proof-roll observation be performed instead of moisture density testing for materials containing more than 30% aggregate retained on the ¾" sieve.</li> </ol>
Compaction Moisture Content Requirements	<ul style="list-style-type: none"> <li>• Optimum moisture content (OMC) to 4% above the standard Proctor optimum moisture content</li> <li>• 2% below to 3% above standard Proctor OMC</li> <li>• Workable moisture content. Shall not pump when proofrolled</li> </ul>
<ul style="list-style-type: none"> <li>• Lean to Fat Clay and Fat Clay</li> <li>• Lean Clay and Silt</li> <li>• Granular</li> </ul>	

#### 4.2.4 Grading and Drainage

Final surrounding grades should be sloped away from the structure on all sides to prevent ponding of water. Gutters and downspouts that drain water a minimum of 10 feet beyond the footprint of the proposed structure is recommended. This can be accomplished through the use of splash-blocks, downspout extensions, and flexible pipes designed to attach to the end of the downspout. Flexible pipe should only be used if it is daylighted in such a manner that it

gravity-drains collected water. Splash-blocks should also be considered below hose bibs and water spigots.

#### 4.2.5 Underground Utilities

Underground utilities can provide a pathway for water to migrate below at-grade slabs. Drain and utility pipes beneath at-grade slabs should have tight joints to prevent leakage. If utility trenches are backfilled with relatively free-draining granular material, they should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the structure and a-grade slabs. In addition, we recommend constructing an impermeable cut-off consisting of an effective clay plug at least 3 feet in length where underground utilities enter or exit the perimeter of the structure.

With the exception of individual service lines to the buildings that intersect foundations perpendicularly, below grade utilities should not be located within the stress influence zone of the building foundations. Accordingly, below grade utilities should be located outside a zone extending 45-degrees downward and outward from the edge of the footings.

#### 4.2.6 Earthwork Construction

In periods of dry weather, the surficial soils may be of sufficient strength to allow fill construction on the stripped and grubbed ground surface. However, unstable subgrade conditions could develop if the soils are wet or subjected to repetitive construction traffic. Should unstable subgrade conditions be encountered, stabilization measures will need to be employed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompact prior construction.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork/fill placement and to perform necessary tests and observations during subgrade preparation; proofrolling; placement and compaction of structural fills; backfilling of excavations into the completed subgrade, and just prior to construction.

#### 4.2.7 Trees or Vegetation with Significant Root Systems

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to or near the structure. The drying effect of the root system can cause the existing subgrade soils to shrink which can

appear as slab movement or foundation settlement. Because of this, we suggest the owner consider using a root control barrier around the perimeter of the structure.

#### 4.2.8 Temporary Excavations

The Occupational Safety and Health Administration (OSHA) has developed regulations to provide for the safety of workers entering excavations. Temporary excavations will probably be required during grading operations. All operations should be performed under the supervision of qualified site personnel in accordance with OSHA Excavation and Trench Safety Standards.

### 4.3 FOUNDATIONS

We recommend that the proposed structure be supported with spread footings. Design recommendations and construction considerations for shallow foundations follow:

#### 4.3.1 Shallow Foundation Design Recommendations

Design recommendations for shallow foundations are as follows:

Shallow Foundation Design Recommendations	
Net allowable bearing pressure <ul style="list-style-type: none"> <li>• Isolated foundations</li> <li>• Continuous foundations</li> <li>• Allowable overstress for transient loads (i.e. snow, wind, seismic)</li> </ul> 1. Assumes all foundations will bear directly upon native soil or new structural fill	2,500 psf 2,100 psf 33%
Minimum foundation dimensions <ul style="list-style-type: none"> <li>• Isolated foundations</li> <li>• Continuous foundations</li> </ul>	30 inches 18 inches
Ultimate passive pressure (equivalent fluid pressure) <ol style="list-style-type: none"> <li>1. The sides of the spread footing foundation excavations must be nearly vertical and the concrete should be placed neat against the vertical faces for the passive earth pressure values to be valid.</li> <li>2. Passive resistance in the frost zone should be neglected.</li> <li>3. Some movement of the footing will be required to mobilize resistance from passive pressure and sliding friction.</li> </ol>	270 pcf
Ultimate coefficient of sliding friction	0.32
Minimum embedment below finished grade for frost protection	30 inches

Shallow Foundation Design Recommendations	
<p><b>Uplift Resistance</b></p> <ul style="list-style-type: none"> <li>• Soil Total Unit Weight</li> <li>• Concrete Total Unit Weight</li> </ul> <ol style="list-style-type: none"> <li>1. Only the soil directly overlying the foundation should be used for uplift resistance</li> <li>2. Unit weight values do not include factors of safety</li> <li>3. Assumes foundations are drained and are constructed above the highest groundwater level</li> </ol>	<p>120 pcf 150 pcf</p>
<p><b>Approximate Foundation Settlement</b></p> <ul style="list-style-type: none"> <li>• Total</li> <li>• Differential</li> </ul> <ol style="list-style-type: none"> <li>1. Assumes maximum footing size of 3.5 feet for isolated foundations and 1.5 feet for continuous foundations</li> <li>2. Assumes footings bear on native soil or new structural fill</li> </ol>	<p>&lt; 1 inch &lt; 3/4 inch</p>

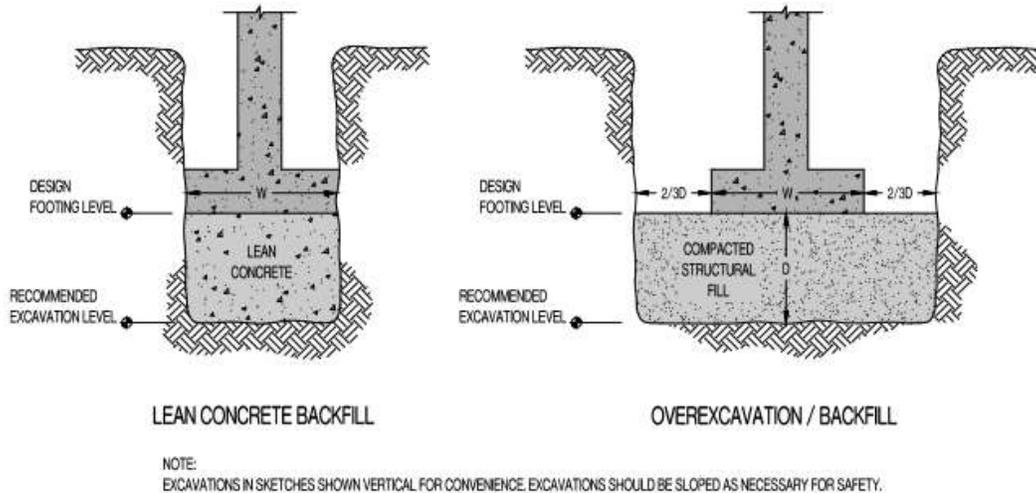
#### 4.3.2 Shallow Foundation Construction Considerations

The base of all foundation excavations should be free of water and loose soil and rock prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soil at the foundation bearing level become excessively dry, disturbed, saturated, or frozen the affected soil should be removed prior to placing concrete. Place a lean concrete mud-mat over the bearing soils if the excavations must remain open over night or for an extended period of time. It is recommended the geotechnical engineer be retained to observe and test the soil foundation bearing materials.

Groundwater was encountered in the borings and conditions may develop such that it may be encountered during foundation excavation. In addition, some surface and/or perched groundwater may enter foundation excavations during construction. It is anticipated any water entering foundation excavations from these sources can be removed using sump pumps or gravity drainage.

If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils and the footings should bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The footings could also bear on properly compacted backfill extending down to the suitable soils. Overexcavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with well graded granular material placed in lifts of 9 inches or less in loose thickness and compacted to at least 98 percent of the material's maximum standard effort maximum dry density (ASTM D 698). The

lean concrete backfill and overexcavation-and-backfill procedures are described in the diagram below.



#### 4.4 FLOOR SLABS

Active soils that are prone to shrink/swell volume change with variations in moisture content are present near the anticipated at-grade floor slab subgrade level. Because of this, we recommend a low volume change zone be constructed beneath all at-grade floor slabs. Details follow:

Floor Slab Design Recommendations <sup>1,2</sup>	
Floor slab support	36-inch low volume change zone
Modulus of subgrade reaction <ul style="list-style-type: none"> <li>• For point loading conditions</li> </ul>	100 (psi/in)
Aggregate base course/capillary break <ul style="list-style-type: none"> <li>• Free draining granular material</li> <li>• Free-draining granular material should have less than 5 percent fines (material passing the #200 sieve)</li> </ul>	4 to 6 inches Aggregate base course can be considered as part of the low volume change zone
<p>1. Floor slabs should be structurally independent of any building footings or walls to reduce the possibility of floor slab cracking caused by differential movement between the slab and foundation. However, if floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates that any differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or slab cracks that occur beyond the length of the structural dowels. The structural engineer should account for this potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.</p> <p>2. If the subgrade should become desiccated or saturated prior to construction of floor slabs, the affected material should be removed or the materials scarified, moistened, and recompact. Care should be taken to</p>	

Floor Slab Design Recommendations <sup>1,2</sup>
maintain the recommended subgrade moisture content and density until construction of the building floor slabs.

Control joints should be utilized in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or any cracks that develop should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

The use of a vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

#### 4.5 SEISMIC CONSIDERATIONS

The International Building Code and ASCE 7 requires the average properties in the upper 100 feet of the subsurface profile be determined for seismic site classification. The drilling scope performed for this project had borings that extended to a maximum depth of approximately 15.0 feet. As such, we provide the following seismic site classification:

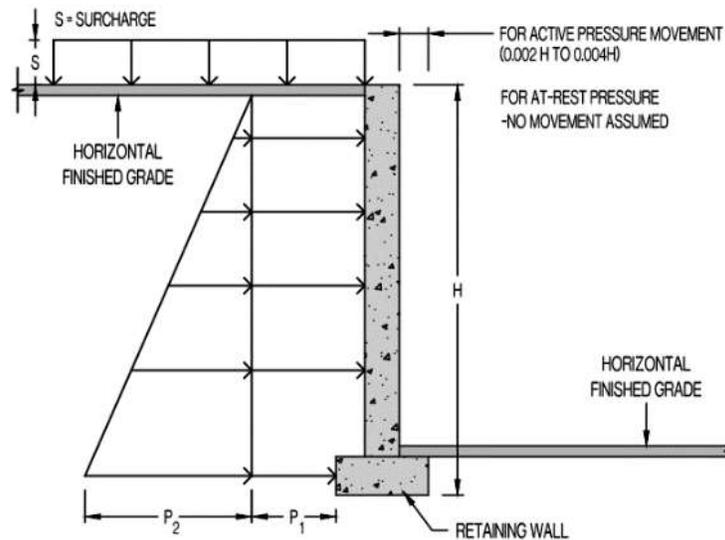
Seismic Site Classification	
Code Used	International Building Code (IBC) and ASCE 7
Site Classification	D

Additional exploration to greater depths could be considered to confirm the conditions below the current depth of exploration. Alternatively, a geophysical exploration could be utilized in order to attempt to justify a more favorable seismic site class.

#### 4.6 LATERAL EARTH PRESSURES

The lateral earth pressure recommendations given in the following paragraphs are applicable to the design of rigid retaining walls subject to slight rotation, such as cantilever, or gravity type concrete walls. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls. Recommendations covering these types of wall systems are beyond the scope of services for this assignment.

Reinforced concrete walls with unbalanced backfill levels may be utilized on this site. Walls should be designed using the earth pressures indicated on the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.



Earth Pressure Coefficients			
Backfill Type	Active ( $K_a$ )	At Rest ( $K_o$ )	Passive ( $K_p$ )
Cohesive Equivalent Fluid Unit Weights	50 pcf	70 pcf	280 pcf
Granular Equivalent Fluid Unit Weights	40 pcf	60 pcf	360 pcf
Surcharge Pressure, $P_1$ (psf)			
Cohesive	$(0.42)S$	$(0.58)S$	---
Granular	$(0.33)S$	$(0.46)S$	---
Earth Pressure, $P_2$ (psf)			
Cohesive	$(50)H$	$(70)H$	---
Granular	$(40)H$	$(55)H$	---

Earth Pressure Coefficients	
Sliding Resistance	0.32 (coefficient of friction)
<ul style="list-style-type: none"> <li>• The values are applicable when the surface of the backfill behind the wall is horizontal. Increased values will result with steeper than horizontal slopes</li> <li>• No safety factor included in soil parameters</li> <li>• Does not include loading from heavy compaction equipment</li> <li>• No hydrostatic pressures acting on wall</li> <li>• Backfill compacted to 95% standard Proctor dry density, or 80% relative density, as appropriate for material type</li> <li>• Soil backfill unit weight a maximum of 120 pcf</li> <li>• No dynamic loading</li> <li>• For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 H to 0.004 H, where H is wall height</li> <li>• For passive earth pressures to develop, the wall must move horizontally</li> <li>• Ignore passive pressure in the frost zone</li> <li>• For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively</li> <li>• Exterior granular backfill should be capped with approximately 2 feet of cohesive soil to reduce the potential for surface water infiltration into the granular backfill</li> <li>• Uniform surcharge, where S is surcharge pressure</li> </ul>	

We recommend all below-grade walls be provided with a drainage system. A minimum 4-inch diameter, perforated drainpipe should be placed at the foundation level. Granular drainage material, consisting of 1-inch clean crushed rock, classified as GP by ASTM D 2487, with less than 5 percent passing the No. 200 sieve, should be placed a minimum of 6 inches in all directions around the drainage pipe. Synthetic filter fabric, such as Mirafi 140N or equivalent, should encapsulate the drainpipe and granular drainage material.

The pipe should be sloped to drain by gravity or through weep holes located on approximately 10-foot centers for above-grade retaining walls, or to a sump with a pump for below-grade walls where positive drainage by gravity cannot be achieved. Any interior sumps must be isolated “watertight” from the interior subgrade to prevent the movement of moisture from the sump into the underlying soils.

#### 4.7 SPECIAL INSPECTION REQUIREMENTS

The following items require special inspections in accordance with Chapter 17 of the International Building Code:

Schedule of Special Inspection Services <sup>1,2</sup>			
Material/Activity	Service	Applicable to this Project	
		Y/N	Extent
1705.6 Soil		Y	
<ul style="list-style-type: none"> <li>• Verify materials below shallow foundations are adequate to achieve the design bearing capacity.</li> </ul>	Field Inspection	Y	Periodic
<ul style="list-style-type: none"> <li>• Verify excavations are extended to proper depth and have reached proper material</li> </ul>	Field Inspection	Y	Periodic
<ul style="list-style-type: none"> <li>• Perform classification and testing of controlled fill materials.</li> </ul>	Field Inspection	Y	Periodic
<ul style="list-style-type: none"> <li>• Verify use of proper material, densities, and lift thicknesses during placement and compaction of controlled fill.</li> </ul>	Field Inspection	Y	Continuous
<ul style="list-style-type: none"> <li>• Prior to placement of controlled fill, observe subgrade and verify site has been prepared properly.</li> </ul>	Field Inspection	Y	Periodic
1705.7 Driven Deep Foundations		N	
1705.8 Cast-In-Place Deep Foundations		N	
1705.9 Helical Pile Foundations		N	
1. Testing and inspections services shall be performed by an approved agency in general accordance with section 1703 of the International Building Code. 2. This section references 2015 IBC. Other code years may have a differing section number for concrete elements			

The contractor shall request special inspection of the items listed above prior to those items becoming inaccessible and unobservable due to the progression of work.

## 5 GENERAL COMMENTS

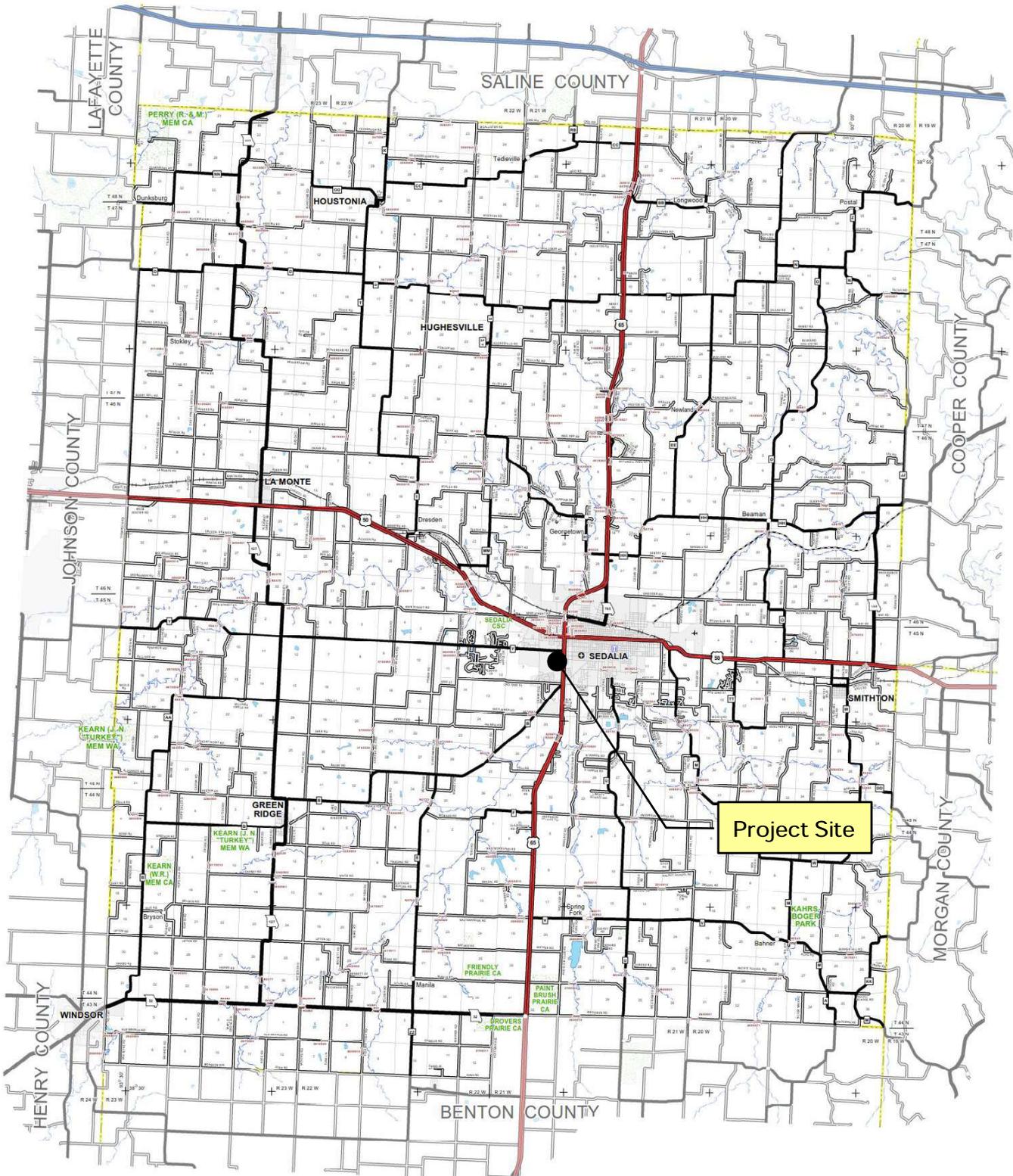
The recommendations provided herein are for the exclusive use of our client. Our recommendations are specific only to the project described herein and are not meant to supersede more stringent requirements of local ordinances or codes. The recommendations are based on subsurface information obtained at our boring locations, sample locations, our understanding of the project as described in this report, and geotechnical engineering practice consistent with the current standard of care. No warranty is expressed or implied. CGTL should be contacted if conditions encountered are not consistent with those described.

CGTL should be provided with a set of final plans and specifications once they are available to review whether our recommendations have been understood and applied correctly and to assess the need for additional exploration or analysis. Failure to provide these documents to

CGTL may nullify some or all of the recommendations provide herein. In addition, any changes in the planned project or changes in site conditions may require revised or additional recommendations on our part.

The final part of our geotechnical service should consist of direct observation during construction to observe that conditions actually encountered are consistent with those described in this report and to assess the appropriateness of the analyses and recommendations contained herein. CGTL cannot assume liability or responsibility for the adequacy of recommendations without being retained to observe construction.

## APPENDIX



# SITE LOCATION MAP

STATE FAIR PAVILION  
SEDALIA, MISSOURI

PROJECT NO.: G19478

Prepared By:

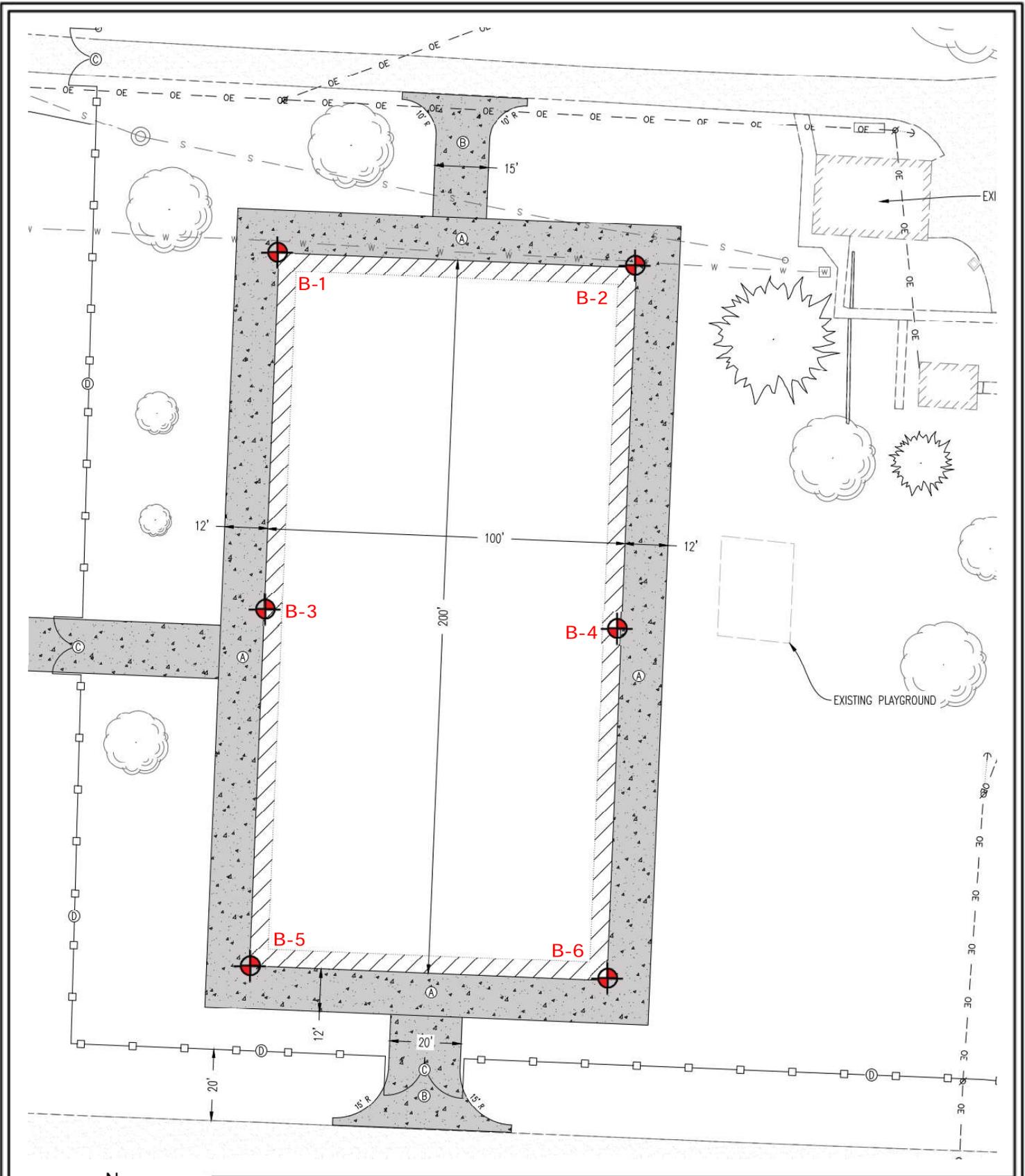
**CROCKETT**  
GEOTECHNICAL - TESTING LAB

1000 W. Nifong Blvd, Building 1

Columbia, MO 65203

573-447-3981

www.CrockettGTL.com



# BORING LOCATION PLAN

STATE FAIR PAVILION  
SEDALIA, MISSOURI

Prepared By:  
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PROJECT NO.: G19478

Crockett GTL  
 1000 W Nifong Blvd. Bldg. #1  
 Columbia, MO 65203  
 Telephone: 573-447-0292



**CLIENT** Crockett Engineering Consultants **PROJECT NAME** State Fair Pavilion  
**PROJECT NUMBER** G19478 **PROJECT LOCATION** Sedalia, Missouri  
**DATE STARTED** 10/7/19 **COMPLETED** 10/7/19 **GROUND ELEVATION** 888.5 ft MSL **HOLE SIZE** 4"  
**DRILLING CONTRACTOR** IPES **GROUND WATER LEVELS:**  
**DRILLING METHOD** 4" SSA **AT TIME OF DRILLING** --- Not Encountered  
**LOGGED BY** Lidholm **CHECKED BY** Grimm **AT END OF DRILLING** --- Not Encountered  
**NOTES** Borehole backfilled upon completion **0.25hrs AFTER DRILLING** --- Not Encountered

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE.GDT - 10/21/19 14:38 - V:\PROJECTS\2019\G19478 - PAVILLION AT STATE FAIR\G19478.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		TOPSOIL (6-inches) 888.0										
2.5		FAT CLAY: Brown to dark brown, trace root hairs, very stiff 886.0	SPT 1	11	2-2-3 (5)	8800			30			
5		FAT CLAY: Gray, trace brown, trace to with rust and lignite stains, very stiff	SPT 2	17	3-4-5 (9)	6000			25			
10			SPT 3	14	2-3-4 (7)	4600			25			
15			SPT 4	13	3-3-5 (8)	8000			25			
15.0		873.5										

No Refusal.  
 Bottom of borehole at 15.0 feet.

**CLIENT** Crockett Engineering Consultants **PROJECT NAME** State Fair Pavilion  
**PROJECT NUMBER** G19478 **PROJECT LOCATION** Sedalia, Missouri  
**DATE STARTED** 10/7/19 **COMPLETED** 10/7/19 **GROUND ELEVATION** 887 ft MSL **HOLE SIZE** 4"  
**DRILLING CONTRACTOR** IPES **GROUND WATER LEVELS:**  
**DRILLING METHOD** 4" SSA **AT TIME OF DRILLING** --- Not Encountered  
**LOGGED BY** Lidholm **CHECKED BY** Grimm **AT END OF DRILLING** --- Not Encountered  
**NOTES** Borehole backfilled upon completion **0.25hrs AFTER DRILLING** --- Not Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		TOPSOIL (6-inches) 886.5										
		FAT CLAY: Brown to dark brown, trace root hairs, stiff	ST 1	17		4000		96	16	61	26	35
3.0		FAT CLAY: Gray, trace brown, trace to with rust and lignite stains, very stiff to hard 884.0	ST 2	23		10200	4090	94	20			
5												
			ST 3	24		7400		104	23			
10												
		--: becomes brown, trace gray	ST 4	22		5200		93	30			
15												

No Refusal.  
 Bottom of borehole at 15.0 feet.

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE.GDT - 10/21/19 14:38 - V:\PROJECTS\2019\G19478 - PAVILLION AT STATE FAIR\G19478.GPJ

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**LOGGED BY** Lidholm **CHECKED BY** Grimm **AT END OF DRILLING** --- Not Encountered  
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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		TOPSOIL (6-inches) 887.5										
		FAT CLAY: Brown to dark brown, trace root hairs, hard										
2.5		885.5	SPT 1	9	1-3-6 (9)	9800			31			
		FAT CLAY: Gray, trace brown, trace to with rust and lignite stains, very stiff to hard										
			SPT 2	13	4-5-6 (11)	12000			21			
5												
			SPT 3	18	2-4-4 (8)	7800			22			
10												
			SPT 4	18		6200			25			
15		873.0										

No Refusal.  
 Bottom of borehole at 15.0 feet.

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE.GDT - 10/21/19 14:38 - V:\PROJECTS\2019\G19478 - PAVILLION AT STATE FAIR\G19478.GPJ

<b>CLIENT</b> <u>Crockett Engineering Consultants</u>	<b>PROJECT NAME</b> <u>State Fair Pavilion</u>
<b>PROJECT NUMBER</b> <u>G19478</u>	<b>PROJECT LOCATION</b> <u>Sedalia, Missouri</u>
<b>DATE STARTED</b> <u>10/7/19</u> <b>COMPLETED</b> <u>10/7/19</u>	<b>GROUND ELEVATION</b> <u>888.5 ft MSL</u> <b>HOLE SIZE</b> <u>4"</u>
<b>DRILLING CONTRACTOR</b> <u>IPES</u>	<b>GROUND WATER LEVELS:</b>
<b>DRILLING METHOD</b> <u>4" SSA</u>	<b>AT TIME OF DRILLING</b> <u>--- Not Encountered</u>
<b>LOGGED BY</b> <u>Lidholm</u> <b>CHECKED BY</b> <u>Grimm</u>	<b>AT END OF DRILLING</b> <u>--- Not Encountered</u>
<b>NOTES</b> <u>Borehole backfilled upon completion</u>	<b>0.25hrs AFTER DRILLING</b> <u>--- Not Encountered</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		TOPSOIL (6-inches) 888.0										
		FAT CLAY: Brown to dark brown, trace root hairs, very stiff	ST 1	19		5200		84	37			
3.0		885.5										
		FAT CLAY: Gray, trace brown, trace to with rust and lignite stains, very stiff	ST 2	17		5600	4075	100	25			
5												
			ST 3	20		6800	3420	105	21			
10												
			ST 4	21		5400		100	26			
15		873.5										

No Refusal.  
 Bottom of borehole at 15.0 feet.

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE.GDT - 10/21/19 14:38 - V:\PROJECTS\2019\G19478 - PAVILLION AT STATE FAIR\G19478.GPJ

Crockett GTL  
 1000 W Nifong Blvd. Bldg. #1  
 Columbia, MO 65203  
 Telephone: 573-447-0292



**CLIENT** Crockett Engineering Consultants **PROJECT NAME** State Fair Pavilion  
**PROJECT NUMBER** G19478 **PROJECT LOCATION** Sedalia, Missouri  
**DATE STARTED** 10/7/19 **COMPLETED** 10/7/19 **GROUND ELEVATION** 887.5 ft MSL **HOLE SIZE** 4"  
**DRILLING CONTRACTOR** IPES **GROUND WATER LEVELS:**  
**DRILLING METHOD** 4" SSA **AT TIME OF DRILLING** --- Not Encountered  
**LOGGED BY** Lidholm **CHECKED BY** Grimm **AT END OF DRILLING** --- Not Encountered  
**NOTES** Borehole backfilled upon completion **0.25hrs AFTER DRILLING** --- Not Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		TOPSOIL (6-inches) 887.0										
		FAT CLAY: Brown to dark brown, trace root hairs, very stiff	ST 1	21		6000		87	29	90	27	63
3.0		FAT CLAY: Gray, trace brown, trace to with rust and lignite stains, very stiff to hard 884.5	ST 2	24		8200	5490	101	21			
5												
			ST 3	19		5400	3095	102	22			
10												
			SPT 4	16	2-5-7 (12)	6000			24			
15												

No Refusal.  
 Bottom of borehole at 15.0 feet.

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE.GDT - 10/21/19 14:38 - V:\PROJECTS\2019\G19478 - PAVILLION AT STATE FAIR\G19478.GPJ

**CLIENT** Crockett Engineering Consultants **PROJECT NAME** State Fair Pavilion  
**PROJECT NUMBER** G19478 **PROJECT LOCATION** Sedalia, Missouri  
**DATE STARTED** 10/7/19 **COMPLETED** 10/7/19 **GROUND ELEVATION** 887.5 ft MSL **HOLE SIZE** 4"  
**DRILLING CONTRACTOR** IPES **GROUND WATER LEVELS:**  
**DRILLING METHOD** 4" SSA **AT TIME OF DRILLING** --- Not Encountered  
**LOGGED BY** Lidholm **CHECKED BY** Grimm **AT END OF DRILLING** --- Not Encountered  
**NOTES** Borehole backfilled upon completion **0.25hrs AFTER DRILLING** --- Not Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		TOPSOIL (6-inches) 887.0										
		FAT CLAY: Brown to dark brown, trace root hairs, hard										
3.0		884.5	SPT 1	12	2-4-5 (9)	10600			28			
		FAT CLAY: Brown, trace gray, trace to with rust and lignite stains, very stiff to hard										
			SPT 2	13	1-3-7 (10)	12000			20			
5												
			SPT 3	18	2-4-4 (8)	9800			20			
10												
			SPT 4	16	3-4-5 (9)	6200			28			
15		872.5										

No Refusal.  
 Bottom of borehole at 15.0 feet.

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# BORING LOG LEGEND AND NOMENCLATURE

Sample Type	Description
AU	Auger sample, disturbed, obtained from auger cuttings
NR	No recovery or lost sample
RC	Rock core, diamond core bit, nominal 2-inch diameter rock sample (ASTM D 2113)
ST	Thin walled (Shelby) tube sample, relatively undisturbed (ASTM D 1587)
SPT	Split spoon sample, disturbed (ASTM D 1586)
VA	Shear vane (ASTM D 2753)

Grain Size Terminology	
Boulders	Larger than 12-inches
Cobbles	3-inches to 12-inches
Gravel	Retained on #4 sieve to 3-inches
Sand	Retained on #200 sieve but passes #4 sieve
Silt or Clay	Passes #200 sieve

Descriptor	Relative Proportion of Sand and Gravel	Relative Proportion of Fines
Trace	Less than 15% by dry weight	Less than 5% by dry weight
With	15% to 30% by dry weight	5% to 12% by dry weight
Modifier	More than 30% by dry weight	More than 12% by dry weight

Relative Density of Coarse grained Soils	
Descriptive Term	SPT N-Value, Blows/Foot
Very Loose	0 - 3
Loose	4 - 9
Medium Dense	10 - 29
Dense	30 - 49
Very Dense	50+

Consistency of Fine Grained Soils		
Descriptive Term	SPT N-Value, Blows/Foot	Unconfined Compressive Strength, psf
Very Soft	0 - 1	0 - 500
Soft	2 - 3	501 - 1,000
Medium	4 - 9	1,001 - 2,000
Stiff	10 - 29	2,001 - 4,000
Very Stiff	30 - 49	4,001 - 8,000
Hard	50+	> 8,000

USCS Soil Classification System					
Major Divisions			Group Symbol	Group Name	
coarse grained soils more than 50% retained on #200 sieve	gravel >50% of coarse fraction retained on #4 (4.75 mm) sieve	clean gravel <5% small than #200 sieve	GW	well-graded gravel, fine to coarse gravel	
		gravel with >12% fines	GP	poorly graded gravel	
		sand >50% of coarse fraction passes #4 (4.75 mm) sieve	clean sand	GM	silty gravel
			sand with >12% fines	GC	clayey gravel
	fine grained soils more than 50% passes #200 sieve	silt and clay liquid limit < 50	inorganic	SW	well-graded sand, fine to coarse sand
			organic	SP	poorly graded sand
silt and clay liquid limit ≥ 50		inorganic	SM	silty sand	
		organic	SC	clayey sand	
highly organic soils		inorganic	ML	silt	
		organic	CL	clay	
		inorganic	OL	organic silt, organic clay	
		organic	MH	silt of high plasticity, elastic silt	
highly organic soils		inorganic	CH	clay of high plasticity, fat clay	
		organic	OH	organic clay, organic silt	
highly organic soils			PT	peat	

Weathering	Description of Rock Properties
Fresh	No discoloration. Not oxidized.
Slightly weathered	Discoloration or oxidation of most surfaces but or short distance from fractures
Moderately weathered	Discoloration or oxidation extends from fractures, usually throughout. All fractured surfaces are oxidized or discolored.
Severely weathered	Discoloration or oxidation throughout. All fractured surfaces are oxidized or discolored. Surfaces are friable.
Decomposed	Resembles a soil. Partial or complete remnant rock structure may be present.

Rock Quality Designator (RQD)	
RQD, %	Rock Quality
90 - 100	Excellent
75 - 90	Good
50 - 75	Fair
25 - 50	Poor
0 - 25	Very poor

Joint, Bedding, and Foliation Spacing in Rock		
Spacing	Joints	Bedding/Foliation
< 2-inches	Very close	Very thin
2-inches - 1-foot	Close	Thin
1-foot - 3-feet	Moderately Close	Medium
3-feet - 10-feet	Wide	Thick
>10-feet	Very Wide	Very thick

## One-Dimensional Swell Potential of Cohesive Soils ASTM D 4546

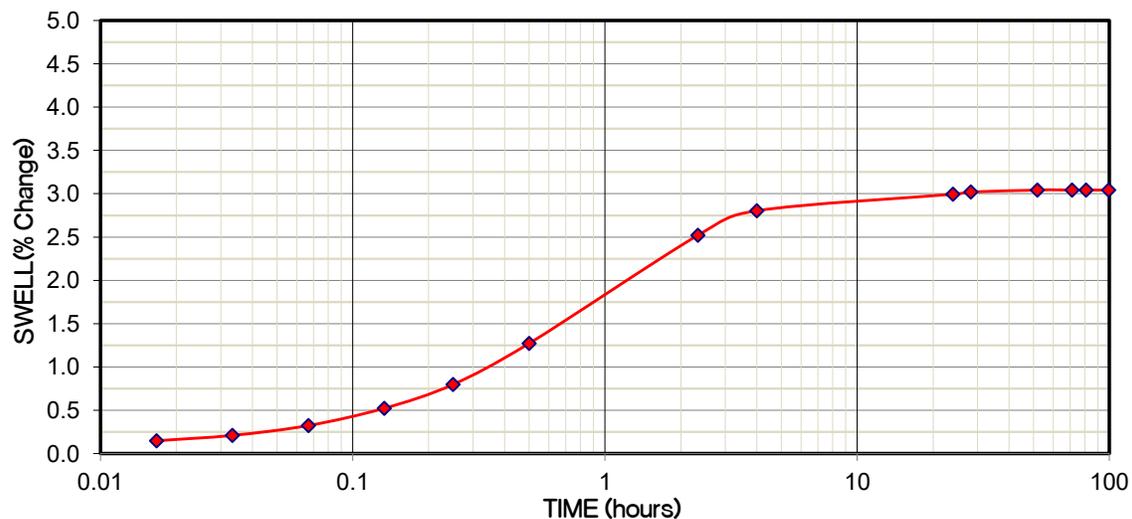
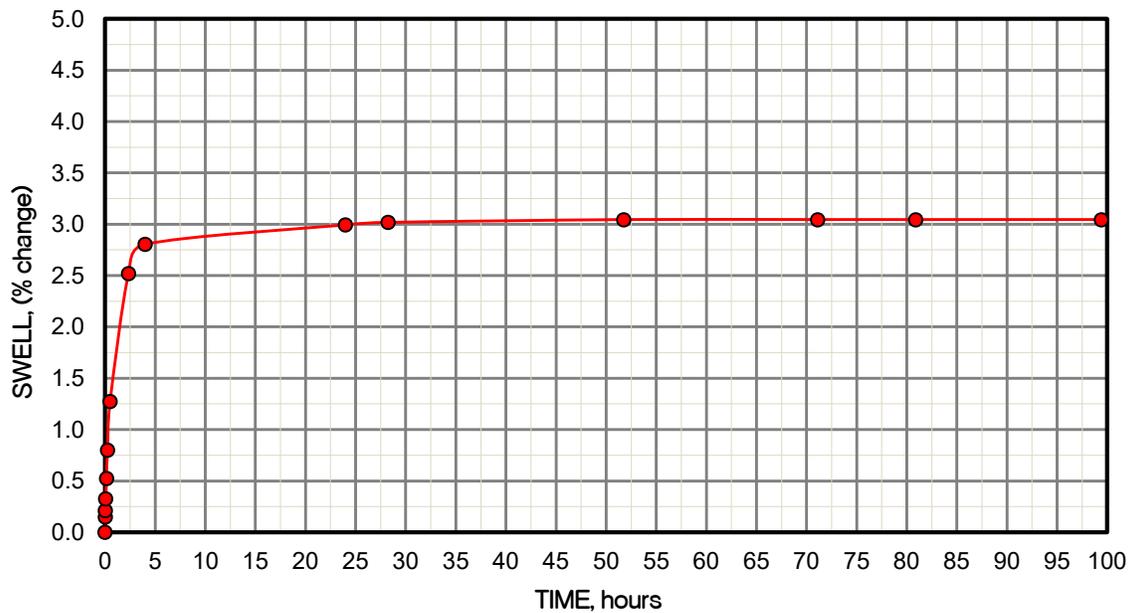
Client Name: Crockett Engineering  
Project Name: State Fair Pavillion  
Project Location: Sedalia, Missouri

Project No.: G19478      Date: 10/21/19

<b>TEST RESULTS</b>	
<b>SWELL:</b>	<b>3.0 %</b>

Boring Number: 2      Sample No.: 1  
Sample Date: 10/11/19      Depth (ft): 1.5  
Sample Description: FAT CLAY: Brown to dark brown,  
trace root hairs, stiff  
  
Test Procedure: ASTM D 4546, Method B  
Reviewed by: Eric H. Lidholm, P.E.

Liquid Limit: 61  
Plastic Limit: 26  
Plasticity Index: 35 *(NP = Non Plastic)*  
Initial Moisture Content: 16.1 %  
Initial Dry Density: 95.7 pcf  
Surcharge Pressure: 60 psf  
Final Moisture Content: 28.4 %  
Final Dry Density: 89.7 pcf



## One-Dimensional Swell Potential of Cohesive Soils ASTM D 4546

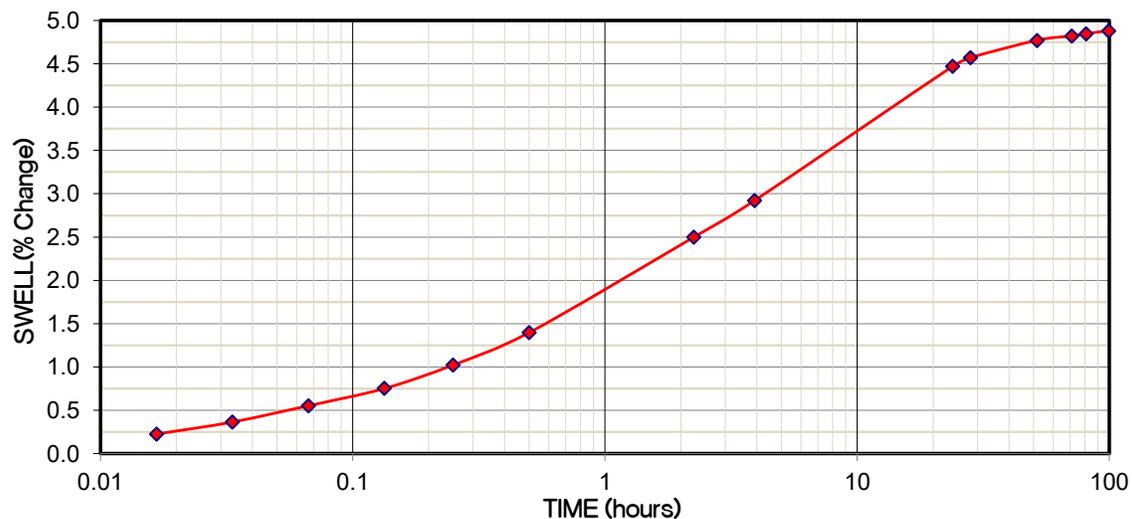
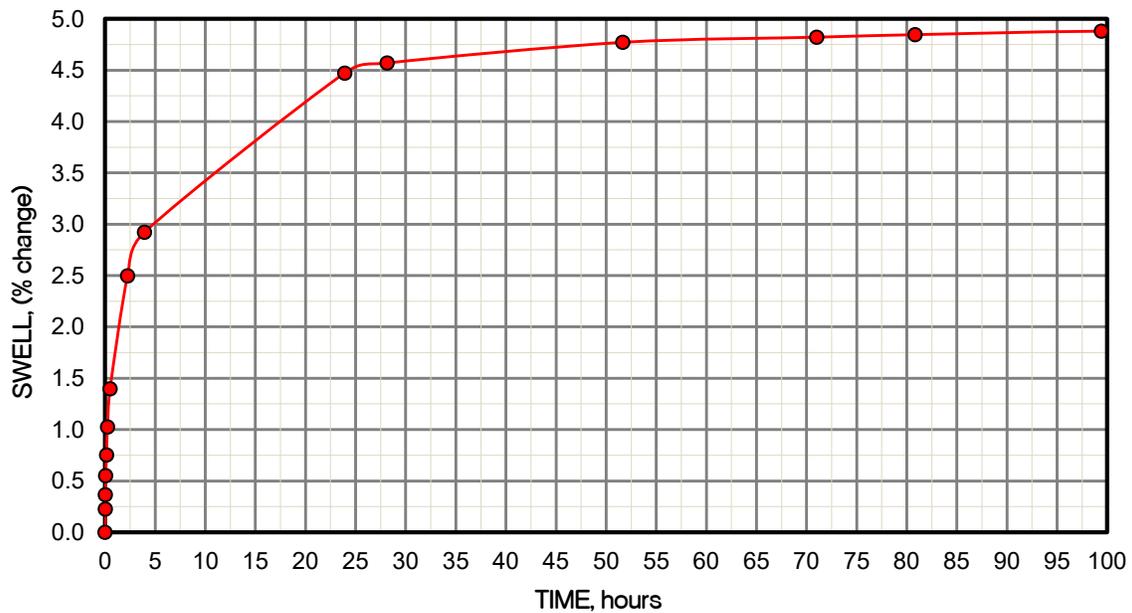
Client Name: Crockett Engineering  
 Project Name: State Fair Pavillion  
 Project Location: Sedalia, Missouri

Project No.: G19478      Date: 10/21/19

<b>TEST RESULTS</b>
<b>SWELL: 4.9 %</b>

Boring Number: 5      Sample No.: 1  
 Sample Date: 10/11/19      Depth (ft): 1.5  
 Sample Description: FAT CLAY: Brown to dark brown,  
trace root hairs, very stiff  
 Test Procedure: ASTM D 4546, Method B  
 Reviewed by: Eric H. Lidholm, P.E.

Liquid Limit: 90  
 Plastic Limit: 27  
 Plasticity Index: 63 (NP = Non Plastic)  
 Initial Moisture Content: 28.9 %  
 Initial Dry Density: 86.5 pcf  
 Surcharge Pressure: 60 psf  
 Final Moisture Content: 36.8 %  
 Final Dry Density: 83.4 pcf



**APPENDIX 2:**  
**NUCOR BUILDING DOCUMENT**

Project No. F2001-01  
New Pavilion  
Sedalia, MO

**AMERICAN BUILDINGS COMPANY**

American Buildings Company - IL  
 2101 East Main - El Paso, IL 61738  
 - Phone: (309) 527-5420 - Fax: (309) 527-1522

ABC PROJECT #

ABC QUOTE # P1378-019

CUST QUOTE #: p1378-019

LABEL: 0 - Base

CONTROL #: P201910300959



DATE: 10/30/2019

**1) ORDER INFORMATION**

**Project Name:** MO State Fair

**Buyer Name:** Nucor Sedalia

**Buyer Address:** 500 Rebar Rd  
 Sedalia, MO 65301  
 United States

**Buyer Contact:** John Kinter

**Contact Phone:** (402) 750-0015

**Contact Fax:**

**Contact Mobile Phone:** (402) 750-0015

**Contact Email:** John.Kinter@Nucor.com

**Buyer P.O. #:**

**(For Reference Only)**

**End Customer:** MO State Fairgrounds

**Order Type:** Production Order

**Anchor Bolt Drawings:** 1 sets

**Erection Drawings:** 1 sets

**ShakeoutPro:** No

**Send Drawings Via:**  Mail  Email (.pdf format only)

**Shipping/Jobsite Address:** Missouri State Fair Grounds

2503 W.16th Street

Sedalia, MO 65301

United States

**Jobsite County:** Pettis

**Est. # of Trucks:** 0

**Freight Method:** EXW Loaded Allowed to Shipping Address

**Ferry Transport:** N/A

**Building End Use:** 4A - Community recreational

**Quote Requested:** 9/27/2019

**Requested Delivery:** 4/1/2020

**Buildings in this Order:** 1

**Building Warranty:** One Year

**Shipping Instructions:**

**2) BUILDING DESCRIPTION**

**BUILDING INFORMATION**

Building Name	Building Profile	Building Width	Building Length	Distance to Ridge	Actual Eave Ht.		Roof Slope		Structural Steel Color	
					FSW	BSW	FSW	BSW	Primary	Wall Sec.
Event Pavillion	Gable Symmetrical	100'-0"	200'-0"	50'-0"	20'-3 1/2"	20'-3 1/2"	2:12"	2:12"	RP	RP

\* Unless noted in Special Requirements all structural members not fabricated of prepainted or galvanized material or treated with a corrosion resistant coating are painted with one coat of shop primer. The coat of shop primer is intended to protect the steel for only a short period of exposure to ordinary atmospheric conditions.

**SECONDARY INFORMATION**

Building Name	Secondary Type	Purlin Tie-in	Roof Sec. Color	Double Ended Bolts	Purlin Depth*	Girt Depth*			
						FSW	BSW	LEW	REW
Event Pavillion	Purlins	None	RP	No	9.5"	per ABC	per ABC	per ABC	per ABC

\* Numerical values indicate user specified purlin/girt depths; otherwise, depths shall be as required by design.

**SIDEWALL AND ENDWALL SPACING**

Building Name	Sidewall Bay Spacing (From LEW)	FSW Soldier Column Spacing (From LEW)	BSW Soldier Column Spacing (From LEW)	Left Endwall (LEW) Column Spacing (From FSW)	Right Endwall (REW) Column Spacing (From FSW)
Event Pavillion	8@25'-0"	N/A	N/A	5@20'-0"	5@20'-0"

**GIRT CONDITION AND SPACING**

Building Name	Front Sidewall (FSW)		Back Sidewall (BSW)		Left Endwall (LEW)		Right Endwall (REW)	
	Girt Condition	Girt Spacings	Girt Condition	Girt Spacings	Girt Condition	Girt Spacings	Girt Condition	Girt Spacings
Event Pavillion	Bypass	ABC Std.	Bypass	ABC Std.	Bypass	ABC Std.	Bypass	ABC Std.

QUOTE AND ORDER DOCUMENT

**AMERICAN BUILDINGS COMPANY**

American Buildings Company - IL  
 2101 East Main - El Paso, IL 61738  
 - Phone: (309) 527-5420 - Fax: (309) 527-1522

ABC PROJECT #

ABC QUOTE # P1378-019

CUST QUOTE #: p1378-019

LABEL: 0 - Base

CONTROL #: P201910300959



DATE: 10/30/2019

**3) PROJECT LOAD REQUIREMENTS**

**Building Code:** IBC 2018

Design to be in accordance with Common Industry Practices as described by the current MBMA Metal Building Systems Manual. Information on this order overrides that on plans or specifications.

**UL90 Rated:** No

**Architectural Plans & Specifications / For Specific Reference Only**

- None Enclosed

**Occupancy Classification:** III - Substantial Hazard

**Live Load:** 20 psf Reducible per Code

**Ground Snow Load:** 20 psf

**Snow Exposure Coefficient (Ce):** 1.0 - Partially Exposed

**Wind Speed:** 120 mph

**Wind Exposure:** C

**Seismic Information: Ss:** 0.158

**S1:** 0.076

**Site Class:** D

**Rainfall intensity:** 7.00 in/hr

**4) BUILDING LOAD REQUIREMENTS**

**LOAD REQUIREMENTS**

Building Name	Roof Dead Load	Roof Snow Load	Wind Enclosure	Thermal Coeff. (Ct)	Primary Collateral	Secondary Collateral	Collateral Load Due To	Roof Insulation R<30 and/or Roof Obstruction Exists
Event Pavillion	Per ABC Std.	22.0 psf*	Partially Open	Unheated Structure (1.2)	5.0 psf	5.0 psf	Mech/Elec/Sprinkler	No

\* Minimum roof snow load(Pm) for low-slope roofs.

**DEFLECTION REQUIREMENTS (Serviceability Criteria)**

Building Name	Purlin / Joist Deflection		Main Frame Deflection		Girt Deflection		Main Frame Sidesway	
	General	Ceiling	General	Ceiling	Steel Panel	Reinf. Masonry	Steel Panel	Reinf. Masonry
Event Pavillion	L/150 Std.	N/A	L/180 Std.	N/A	L/90 Std.	N/A	H/100	N/A

"Other" Deflection Requirements: (See Special Requirements)

**ADDITIONAL BUILDING COMPONENTS**

Building Name	Additional Existing Building or Natural Obstruction Not Defined in Box 25?	Does Additional Obstruction cause Snow Drift?	Other Loads
Event Pavillion	No Additional Obstruction	N/A	N/A

The Project Architect or the Engineer of Record is responsible for specifying Design Loads in accordance with the governing Building Code, local requirements (if any), and special end use requirements. The Manufacturer's Engineer does NOT serve as the Engineer of Record. (See the current MBMA Metal Building Systems Manual). Loads specified will be applied in general accordance with the engineering formulas of the specified code. Code requirements for fire, egress, ADA compliance, and other considerations are the responsibility of the buyer.

**5) FRAME INFORMATION**

**BUILDING NAME:** Event Pavillion

**Cold Formed Materials Not Allowed**

Frame Line	Frame Type	Future Expansion	Interior Module Spacing(From FSW)	Int. Column Type	Straight Cols		Column Base Elevation		
					FSW	BSW	FSW	BSW	Int.
1 (LEW)	Rigid Frame Clear Span (Non-Exp) - RCG	N/A	1@100'-0"	N/A	No	No	0'-0"	0'-0"	N/A
2 - 8	Rigid Frame Clear Span - RCG	N/A	1@100'-0"	N/A	No	No	0'-0"	0'-0"	N/A
9 (REW)	Rigid Frame Clear Span (Non-Exp) - RCG	N/A	1@100'-0"	N/A	No	No	0'-0"	0'-0"	N/A

Base Plate Elevations: Negative values are below finish floor (B.F.F.) and positive values are above finish floor (A.F.F.).

QUOTE AND ORDER DOCUMENT

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LABEL: 0 - Base

CONTROL #: P201910300959



DATE: 10/30/2019

**6) ROOF PANEL**

Building Name	Roof Panel Type	Ext. Gauge	Ext. Color	Clip Type	Roof Insulation	Insulation by ABC?	Endlap Clamp Qty	Inst. Clamp Qty	Insulation Pan	Staggered Endlaps	Weather Tightness Warranty
Event Pavillion	Standing Seam 360	24 ga.	EG	Sliding	4" Standard Fiberglass - Short Panel Clips	No	0	0	No	Yes	None

\*Roof Insulation is not provided by ABC. Insulation prevents condensation, noise and damage due to wind. Due consideration must be given by the designer to these issues.

Roof warranty options apply only to standard ABC Finishes. Refer to the American Buildings Company Warranty Instruction Guide.

ABC recommends tall clips for insulation thickness greater than 4"

**ABC INSULATION INFORMATION**

Building Name	Bearing Plate	Thermal Block	Facing Type	Facing Color	Starter Roll Width	Typical Roll Width
Event Pavillion	N/A	N/A	N/A	N/A	N/A	N/A

**ABC STANDARD COLOR CODES**

Miscellaneous Finishes GM Finish (25 yr Std. Warranty)		Silicon Polyester (SP) Finish (25 yr Standard Warranty)				PVDF Finish (35 yr Standard Warranty) Standard Upcharge Applies			
Galvalume:	GM	Aztec Blue (SP):	AB	Polar White (SP):	PW	Dark Bronze (PVDF):	DB	Surrey Beige (PVDF):	SU
Galvalume Plus:	AY	Brick Red (SP):	BR	Sagebrush Tan (SP):	SB	Evergreen (PVDF):	EG	To Be Selected (PVDF):	TBK
		Burnished Slate (SP):	BS	Sand Stone (SP):	SS	Royal Blue (PVDF):	RO	Terra Cotta (PVDF):	TC
		Fox Gray (SP):	FG	To Be Selected (SP):	TBS	Regal White (PVDF):	RW	Warm White (PVDF):	WW
		Hunter Green (SP):	HG			Slate Gray (PVDF):	SG		

**7) ROOF LINE TRIM**

**FRONT SIDEWALL (FSW) TRIM INFORMATION**

Building Name	Trim Texture	Front Sidewall (FSW) Eave Trim	FSW Eave Trim Color	Ridge Flashing	Downspout Condition	Downspout Color	Delete Elbow at Base?
Event Pavillion	Smooth (Standard)	Std. Gutter w/ Downspouts	EG	Expansion Ridge	Corrugated Downspouts	EG	No

**BACK SIDEWALL (BSW) TRIM INFORMATION**

Building Name	Trim Texture	Back Sidewall (BSW) Eave Trim	BSW Eave Trim Color	Ridge Flashing	Downspout Condition	Downspout Color	Delete Elbow at Base?
Event Pavillion	Smooth (Standard)	Std. Gutter w/ Downspouts	EG	Expansion Ridge	Corrugated Downspouts	EG	No

**ENDWALL TRIM INFORMATION**

Building Name	LEW Trim Texture	Left Endwall (LEW) Rake Trim	LEW Rake Trim Color	REW Trim Texture	Right Endwall (REW) Rake Trim	REW Rake Trim Color
Event Pavillion	Smooth (Standard)	Universal Rake	EG	Smooth (Standard)	Universal Rake	EG

**8) ROOF ACCESSORIES - NONE REQUIRED**

QUOTE AND ORDER DOCUMENT

**AMERICAN BUILDINGS COMPANY**

American Buildings Company - IL  
 2101 East Main - El Paso, IL 61738  
 - Phone: (309) 527-5420 - Fax: (309) 527-1522

ABC PROJECT #

ABC QUOTE # P1378-019

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LABEL: 0 - Base

CONTROL #: P201910300959



DATE: 10/30/2019

**9) WALL PANEL**

Building Name	Wall ID	Wall Panel Type	Ext. Gauge	Ext. Color	Wall Insulation	Insulation by ABC?	Wall Corner Trim Color	Finish Warranty	Include Closures	Base Closures
Event Pavillion	All	Longspan III	26 ga.	SS	4" Standard Laminated Fiberglass	No	SS	25 Year (SP)	Yes	Yes

\*Wall Insulation is not provided by ABC. Insulation prevents condensation, noise and damage due to wind. Due consideration must be given by the designer to these issues.

Wall warranty options apply only to standard ABC Finishes. Refer to the American Buildings Company Warranty Instruction Guide.

Please schedule fabrication and delivery of steel to coincide closely with your erection schedule. This will minimize the possibility of damage due to exposure to the elements. Panels must be kept free of moisture and debris at all times. See instruction on panel bundles, ABC Wall Sheeting Erection Guide and the construction details. Improper storage or handling will diminish the life of the product and VOIDS all warranties.

**BASE TRIM CONDITIONS**

Building Name	Wall ID	Base Trim Type	Base Trim Color	Vertical Dimension "X"	Horizontal Dimension "Y"
Event Pavillion	All	Base Angle w/ Trim	SS	N/A	N/A

Note: Masonry fasteners are not supplied by ABC.

**ABC INSULATION INFORMATION**

Building Name	Wall ID	Facing Type	Facing Color	Starter Roll Width	Typical Roll Width
Event Pavillion	All	N/A	N/A	N/A	N/A

**10) FRAMED OPENINGS - NONE REQUIRED**

**11) WALL DELETIONS**

ID	Building Name	Wall ID	Loc. LSL	Width	Top Elevation	Open / Materials?	Allow X-Bracing?	Remove Panels	Wind Load Conf.
					Bottom Elevation	Support Type*	Col. Flg. Bracing	Remove Girts	
1	Event Pavillion	LEW	Full Width	Full Width	16'-0" 0'-0"	Perm. Open N/A	Yes No	Yes Yes	No
2	Event Pavillion	FSW	Full Width	Full Width	16'-0" 0'-0"	Perm. Open N/A	Yes No	Yes Yes	No
3	Event Pavillion	REW	Full Width	Full Width	16'-0" 0'-0"	Perm. Open N/A	Yes No	Yes Yes	No
4	Event Pavillion	BSW	Full Width	Full Width	16'-0" 0'-0"	Perm. Open N/A	Yes No	Yes Yes	No

\*Spandrel(s) by ABC: ABC to provide spandrel for lateral support of wall as requested.

Support at Columns Only: No spandrel provided by ABC, material by others attached to ABC Columns.

Independent: No structural attachment to ABC structure.

**12) BRACING OPTIONS**

Building Name	Wall ID	Bracing Type	Clear Height Requested	User Specified Bay #'s	Bracing in Bay #'s
Event Pavillion	LEW, REW	None	N/A	No	N/A
Event Pavillion	FSW, BSW	Portal Frames	Per ABC	Yes	2, 7

Sketch must show locations for bracing on the sidewall bays and endwall bays.