

**PROJECT MANUAL**  
**BIDDING, CONTRACT DOCUMENTS,**  
**AND TECHNICAL SPECIFICATIONS**  
**FOR**

**City of Malden**  
**Frisco Park Improvements**  
**S&C # P220240**

**May 2024**

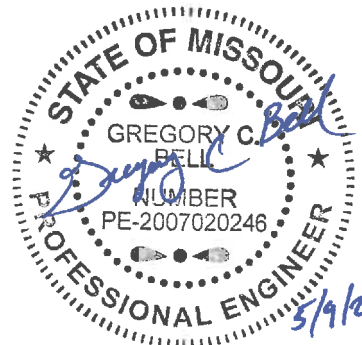
**OWNER:**  
**City of Malden**  
201 S. Madison  
Malden, MO 63863

**PREPARED BY:**  
**Gregory C. Bell**  
PE 2007020246

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**SMITH & CO.**  
ENGINEERS

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**SECTION 00003 - TABLE OF CONTENTS**

**DIVISION 00 - BIDDING & CONTRACT DOCUMENTS**

00001	COVER
00003	TABLE OF CONTENTS
00020	INVITATION TO BID
00100	INSTRUCTIONS TO BIDDERS
00290	BASIS OF BIDS
00300	BID PROPOSAL
00410	BID BOND
00490	NOTICE OF AWARD
00520	AGREEMENT
00610	PERFORMANCE BOND
00620	PAYMENT BOND
00690	NOTICE TO PROCEED
00700	GENERAL CONDITIONS
00800	SUPPLEMENTARY CONDITIONS
00830	WAGE RATES

**DIVISION 01 - GENERAL REQUIREMENTS**

01330	SUBMITTAL PROCEDURES
01500	TEMPORARY FACILITIES
01732	SELECTIVE DEMOLITION

**DIVISION 02 - SITE CONSTRUCTION**

02230	SITE CLEARING
02300	EARTHWORK
02310	EXCAVATING & BACKFILLING TRENCHES
02510	WATER DISTRIBUTION PIPING
02925	PERMANENT EROSION CONTROL

**DIVISION 03 - CONCRETE**

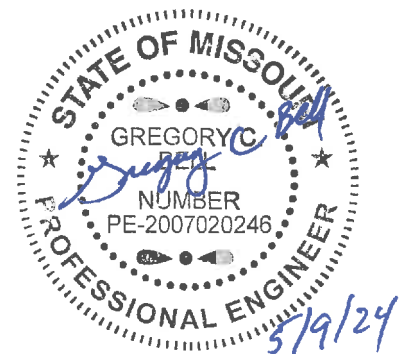
03300	CAST-IN-PLACE CONCRETE
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**DIVISION 04 - 16 (NOT USED)**

**Drawings**

BOUNDARY/GENERAL LAYOUT
WATERPLAY DRAWINGS

**END OF SECTION 00003**



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**SECTION 00020 – INVITATION TO BID**

Owner: City of Malden

201 South Madison

Malden, MO 63863

Separate sealed bids for the Frisco Park Improvements to serve the City of Malden will be received by the Ivone Smith, City Administrator, at Malden City Hall until 10:00 A.M. on June 13, 2024, and then at said office publicly opened and read aloud.

The project shall consist of Concrete Splash Pad Surface for the Improvements to Frisco Park.

The Instruction To Bidders, Bid Form, Bid Bond Form, Agreement (Construction Contract) Form, Performance Bond Form, Payment Bond Form, and other contract documents may be examined at:

1. City of Malden, 201 S. Madison, Malden, MO 63863

Bid Results will be available by 5:00 P.M. the following day. You call the City and request a copy after the date specified above.

The Owner reserves the right to waive any informality or to reject any or all bids. No Bidder may withdraw his bid within 60 days after the actual date of the bid opening.

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

The Sponsor hereby notifies all bidders that this contract is subject to applicable labor laws, non-discrimination provisions, wage rate laws and other federal laws including the Fair Labor Standards Act of 1938. The Work Hours Act of 1962 and Title VI of the Civil Rights Act of 1964 also apply.

Date: May 28, 2024

Ivone Smith, City Administrator, City of Malden

**END OF SECTION 00020**

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## SECTION 00100 –INSTRUCTIONS TO BIDDERS

### ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

- A. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

### ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the office of the Engineer or City of Malden.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

### ARTICLE 3 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

3.01 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in Paragraph 4.06 of the General Conditions.

3.02 Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

3.03 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and (2) reports and drawings of Hazardous Environmental Conditions at the Site which have been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions;
- E. obtain and carefully study (or accept consequences of not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- I. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

3.04 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

#### **ARTICLE 4 - PRE-BID CONFERENCE**

4.01 No Pre-Bid Conference is scheduled.

**ARTICLE 5 - SITE AND OTHER AREAS**

5.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

**ARTICLE 6 - INTERPRETATIONS AND ADDENDA**

6.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer, Gregory Bell PE with Smith & Company, in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

**ARTICLE 7 - BID SECURITY**

7.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five (5%) percent of Bidder's maximum Bid price and in the form of a certified check or bank money order or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

7.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

7.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening

**ARTICLE 8 - CONTRACT TIMES**

8.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

**ARTICLE 9 - LIQUIDATED DAMAGES**

9.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

**ARTICLE 10 - SUBSTITUTE AND "OR-EQUAL" ITEMS**

10.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

**ARTICLE 11 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

11.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

11.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

11.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

**ARTICLE 12 - PREPARATION OF BID**

12.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer

12.02 All blanks on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

12.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

12.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

12.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.

12.06 A Bid by an individual shall show the Bidder's name and official address.

12.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown below the signature.

12.08 All names shall be typed or printed in ink below the signatures.

12.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

12.10 The address and telephone number for communications regarding the Bid shall be shown.

12.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

#### **ARTICLE 13 - BASIS OF BID; COMPARISON OF BIDS**

##### **13.01 Lump Sum**

A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.

13.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.

#### **ARTICLE 14 - SUBMITTAL OF BID**

14.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form. The unbound copy of the Bid Form is to be completed and submitted with the following data:

A. none required.

14.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Ivone Smith, City Administrator, 201 S. Madison, Malden, MO 63863.

**ARTICLE 15 - MODIFICATION AND WITHDRAWAL OF BID**

15.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

15.02 Any bidder may modify his/her bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

15.03 If within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

**ARTICLE 16 - OPENING OF BIDS**

16.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

**ARTICLE 17 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid prior to the end of this period.

**ARTICLE 18 - EVALUATION OF BIDS AND AWARD OF CONTRACT**

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, non-responsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

18.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

18.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.



18.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

18.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

18.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

#### **ARTICLE 19 - CONTRACT SECURITY AND INSURANCE**

19.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

#### **ARTICLE 20 - SIGNING OF THE AGREEMENT**

20.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

#### **ARTICLE 21 - SALES AND USE TAXES**

21.01 Owner is exempt from [Missouri] state sales and use taxes on materials and equipment to be incorporated in the Work. Exemption No. [12491144]. Said taxes shall not be included in the Bid. Refer to Paragraph SC-6.10 of the Supplementary Conditions for additional information.

#### **ARTICLE 22 - RETAINAGE**

22.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

#### **ARTICLE 23 - NOTICE OF SPECIAL CONDITIONS**

23.01 Attention is particularly called to those parts of the contract documents and specifications that deal with the following:

- A. Inspection and testing of materials.
- B. Insurance requirements.
- C. Wage rates.

- D. Stated Allowances.

#### **ARTICLE 24 - LAWS AND REGULATIONS**

24.01 The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

#### **ARTICLE 25 - SAFETY STANDARDS AND ACCIDENT PREVENTION**

25.01 With respect to all work performed under this contract, the contractor shall:

- A. Comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.
- B. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

25.02 Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

#### **ARTICLE 26 - EQUAL OPPORTUNITY COMPLIANCE**

26.01 For all LWCF grants involving federally assisted construction contracts and subcontracts in excess of \$10,000, the recipient must comply with Executive Order 11246, as amended, and with the regulations of the Office of Federal Contract Compliance Programs of the Department of Labor at 41 C.F.R. Part 60-4. In determining whether Fund-assisted construction contracts exceed this dollar limit, the total amount of the contract awarded rather than the amount of federal assistance shall apply.

- A. See Attached Documents.

#### **ARTICLE 27 - CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

27.01 All contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary,

hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

## **ARTICLE 28 - MISSOURI PREVAILING WAGE**

28.01 If applicable to this contract, the contractor agrees to comply with all provisions of Missouri's Prevailing Wage Law establishes a minimum wage rate for public works projects in Missouri valued over \$75,000. Examples of public works projects include bridges, roads and government buildings. The Prevailing Wage Law applies to all public works projects constructed by or on behalf of state and local public bodies.

## **ARTICLE 29 - NON-PROCUREMENT DEBARMENT AND SUSPENSION**

29.01 In accordance with 2 C.F.R. § 200.214, no grant or contract may be awarded by a recipient, subrecipient, or contractor of any recipient or subrecipient, to any party who has been debarred or suspended under Executive Order 12549. List of debarred or suspended entities can be found in the System for Award Management ([www.sam.gov](http://www.sam.gov)).

- A. See Attached Documents.

## **ARTICLE 30 - BYRD ANTI-LOBBYING AMENDMENT**

30.01 Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

## **ARTICLE 31 - CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS**

31.01 Pursuant to Executive Orders 11625, 12138, and 12432 and 2 C.F.R. § 200.321, it is the Federal Government's policy to award a fair share of contracts to small and minority businesses, women's business enterprises, and labor surplus area firms. Project sponsors must take all necessary affirmative steps to assure that these types of businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps must include:

- A. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- B. assuring small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- C. when economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum participation by small and minority businesses, and women's business enterprises;
- D. where the requirement permits, establishing delivery schedules that will encourage participation by small and minority businesses, and women's business enterprises;

- E. as appropriate, using the services and assistance of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
- F. if any subcontracts are to be let, requiring the prime contractor to take the affirmative steps in paragraph [1] through [5] above;

#### **ARTICLE 32 - CIVIL RIGHTS**

- 32.01 The States, as primary recipients of assistance, are responsible for providing assurance that the applicant and all sub-recipients will comply with all related federal civil rights requirements. This shall be accomplished through:
- A. Establishing an open project selection process according to the standards of NPS;
  - B. Notifying NPS of any inconsistencies with civil rights requirements having arisen from onsite State program reviews and valid complaints registered with the Department, NPS, or the State where impasses have been reached in resolving the compliance issue(s);
  - C. Cooperating with NPS toward seeking a satisfactory resolution of any inconsistencies found, including efforts toward seeking voluntary compliance, enforcement procedures and follow up reviews; and,
  - D. Assuring that each sub-recipient/applicant is provided a copy of Title VI, 504/ADA Title II, ADAAG, LEP, Title IX, and Age non-discrimination requirements. For details on enforcement of related civil rights requirements, refer to:
    - 1. Title VI of the Civil Rights Act of 1964 at 43 C.F.R. Part 17, Subpart A
    - 2. Section 504 of the Rehabilitation Act of 1973 at 43 C.F.R. Part 17, Subpart B LWCF Financial Assistance Manual Effective 03/11/2021 Chapter 4 – Page 67
    - 3. Non-Discrimination on the Basis of Age at 43 C.F.R. Part 17, Subpart C
    - 4. ADA Title II at 28 C.F.R. Part 35
    - 5. ADA Accessibility Guidelines at 28 C.F.R. Part 36
    - 6. Title IX of the Education Amendments of 1972 at 43 C.F.R. Part 41
    - 7. Limited English Proficiency (E.O. 13166) at 28 C.F.R. § 42.104(b)(2)

#### **ARTICLE 33 - EMPLOYMENT OF UNAUTHORIZED ALIENS PROHIBITED**

- 33.01 Pursuant to §285.530.1, RSMo, the contractor assures that it, as well as its subcontractors do not knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the State of Missouri.
- 33.02 As a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state to a business entity, or for any business entity receiving a state-administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. Any entity contracting with the state or any political subdivision of the

state shall only be required to provide the affidavits required in this subsection to the state and any political subdivision of the state with which it contracts, on an annual basis. During or immediately after an emergency, the requirements of this subsection that a business entity enroll and participate in a federal work authorization program shall be suspended for fifteen working days. As used in this subsection, "**emergency**" includes the following natural and manmade disasters: major snow and ice storms, floods, tornadoes, severe weather, earthquakes, hazardous material incidents, nuclear power plant accidents, other radiological hazards, and major mechanical failures of a public utility facility.

- 33.03 All public employers shall enroll and actively participate in a federal work authorization program.
- 33.04 An employer may enroll and participate in a federal work authorization program and shall verify the employment eligibility of every employee in the employer's hire whose employment commences after the employer enrolls in a federal work authorization program. The employer shall retain a copy of the dated verification report received from the federal government. Any business entity that participates in such program shall have an affirmative defense that such business entity has not violated subsection 1 of this section.
- 33.05 A general contractor or subcontractor of any tier shall not be liable under sections [285.525 to 285.550](#) when such general contractor or subcontractor contracts with its direct subcontractor who violates subsection 1 of this section, if the contract binding the contractor and subcontractor affirmatively states that the direct subcontractor is not knowingly in violation of subsection 1 of this section and shall not henceforth be in such violation and the contractor or subcontractor receives a sworn affidavit under the penalty of perjury attesting to the fact that the direct subcontractor's employees are lawfully present in the United States.

**ARTICLE 34 - COPELAND "ANTI-KICKBACK" ACT**

34.01 The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract. The Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled.

34.02 The Contractor or subcontractor shall insert in any subcontracts the clause above, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

34.03 A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. 5.12.

**ARTICLE 35 - RIGHTS TO INVENTIONS**

35.01 Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 C.F.R. pt. 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 C.F.R. 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

**ARTICLE 36 - ENERGY CONSERVATION**

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

**ARTICLE 37 - CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

37.01 If the amount of the Contract exceeds \$150,000, the Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.

37.02 The Contractor agrees to report each violation to the Owner, and understands and agrees that the Owner will, in turn, report each violation as required to assure notification to the Federal Agency and the appropriate Environmental Protection Agency Regional Office. 19

37.03 The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance.

**ARTICLE 38 - CONTRACTOR EMPLOYEE WHISTLEBLOWER RIGHTS AND REQUIREMENTS TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS**

38.01 This contract and employees working on this contract will be subject to the whistleblower rights and remedies in the pilot program on contractor employee whistleblower protections established at 41 U.S.C. § 4712 by section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239) and FAR 3.908.

38.02 The Contractor shall inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. § 4712, as described in section 3.908 of the Federal Acquisition Regulation.

38.03 The Contractor shall insert the substance of this clause, including this paragraph (c), in all subcontracts over the simplified acquisition threshold.

**ARTICLE 39 - PROHIBITION ON CERTAIN TELECOMMUNICATION AND VIDEO SURVEILLANCES SERVICES OR EQUIPMENT (PUB. L. 115-232, SECTION 889)**

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

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

**END OF SECTION 00100**

**ATTACHMENTS:**

E-Verify Affidavit  
Affidavit of Compliance with the Prevailing Wage Law.  
Certification of Non-Segregated Facilities  
Debarment-Suspension  
Equal Opportunity Compliance  
General Conditions for Federally Funded Projects

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STATE OF MISSOURI            )  
  ) ss  
COUNTY OF \_\_\_\_\_)

### AFFIDAVIT

(as required by Section 285.530, Revised Statutes of Missouri)

As used in this Affidavit, the following terms shall have the following meanings:

**EMPLOYEE:** Any person performing work or service of any kind for hire within the State of Missouri.

**FEDERAL WORK AUTHORIZATION PROGRAM:** Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

**KNOWINGLY:** A person acts knowingly or with knowledge,

- a. with respect to the person's conduct or to attendant circumstances when the person is aware of the nature of the person's conduct or that those circumstances exist; or
- b. with respect to a result of the person's conduct when the person is aware that the person's conduct is practically certain to cause that result.

**UNAUTHORIZED ALIEN:** An alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. 1324a(h)(3).

BEFORE ME, the undersigned authority, personally appeared

\_\_\_\_\_, who, being duly sworn, states on his  
oath or affirmation as follows:

1. My name is \_\_\_\_\_ and I am currently the President of \_\_\_\_\_ (hereinafter "Contractor"), whose business address is \_\_\_\_\_ "and I am authorized to make this Affidavit.
2. I am of sound mind and capable of making this Affidavit and am personally acquainted with the facts stated herein.
3. Contractor is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the following services contracted between Contractor and \_\_\_\_\_
4. Contractor does not knowingly employ any person who is an unauthorized alien in connection with the contracted services set forth above.
5. Attached hereto is documentation affirming Contractor's enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services.

Further, Affiant sayeth not.

\_\_\_\_\_  
Affiant

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

Commission #

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**DIVISION OF  
LABOR  
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS  
**AFFIDAVIT  
COMPLIANCE WITH THE PREVAILING WAGE LAW**

I, \_\_\_\_\_, upon being duly sworn upon my oath state that: (1) I am the  
(Name)  
\_\_\_\_\_ of \_\_\_\_\_; (2) all requirements of  
(Title) (Name of Company)  
§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects  
have been fully satisfied with regard to this company's work on \_\_\_\_\_;  
(Name of Project)

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

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

\_\_\_\_\_  
Signature

Subscribed and sworn to me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

My commission expires \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Receipt by Authorized Public Representative

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**CERTIFICATION OF  
NON-SEGREGATED FACILITIES**

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

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

Contractor Signature \_\_\_\_\_

Typed Name & Title \_\_\_\_\_ Date \_\_\_\_\_

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**U.S. Department of the Interior**

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

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

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - **The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used or use this form certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)**

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

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

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

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

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

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
  - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

---

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

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

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**PART C: Certification Regarding Drug-Free Workplace Requirements**

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CHECK ☐ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

**Alternate I. (Grantees Other Than Individuals)****A. The grantee certifies that it will or continue to provide a drug-free workplace by:**

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

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

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

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Check ☐ if there are workplaces on files that are not identified here.

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**PART D: Certification Regarding Drug-Free Workplace Requirements**

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CHECK ☐ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

**Alternate II. (Grantees Who Are Individuals)**

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



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

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

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

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

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

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

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SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

---

TYPED NAME AND TITLE

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DATE

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### **Equal Opportunity Compliance**

The contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 43 CFR 17.

The Contractor agrees that it will comply with all federal and state laws and regulations and local ordinances and that it will comply and cause each of its subcontractors, if any, to comply with all federal and state laws and federal regulations and directives pertaining to nondiscrimination against any person on the ground of race, color, religion, creed, sex, age, ancestry, or national origin in connection with this contract, including procurement of materials and lease of equipment therefore and selection of subcontractors.

EO 11246, Part III, Section 301 applies to federal assistance of \$10,000 or more construction contracts or subcontracts; and requires the language listed at section 202 to be incorporated in and made a part of every contract paid with federal assistance, as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provision of this nondiscrimination clause.
2. The contractor will, in all solicitations or advancements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

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6. The contractor will furnish all information and reports required by Executive Order No. 11246 of Sept. 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
  7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with the procedures authorized in EO 11246 of Sept. 24, 1965 and such other sanctions may be imposed and remedies invoked as provided in EO 11246, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.
  8. The subcontractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of EO 11246, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event the contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.
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**GENERAL CONDITIONS**  
**FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS**

1. These General Conditions for Federally Funded/Assisted Construction Projects (GCFFAC) must be physically incorporated in each construction contract funded by the Land and Water Conservation Fund in Missouri. The contractor (or subcontractor) must insert this document in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). The applicable requirements of the GCFFAC are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

GCFFAC must be included in all contracts to be paid using federal assistance, and in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

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

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

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

**1.0 Notice of Federal Funding**

This project is being performed in whole or in part using federal funds. Therefore, all work or services performed by the Contractor and its subcontractors shall be subject to the terms and conditions set forth below in addition to all terms and conditions in the Construction Contract, General Conditions, and other contract documents. The concepts, rules, and guidelines set forth in 2 C.F.R. 200 describing allowable costs and administrative requirements apply.

**2.0 Definitions**

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

**3.0 Conflicting Terms or Conditions**

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

#### **4.0 No Obligation by Federal Government**

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

#### **5.0 Compliance with Federal Laws, Regulations and Executive Orders**

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

#### **6.0 Compliance with Civil Rights Provisions**

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

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

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

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

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

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

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

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

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

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

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

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during

employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicants or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

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

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

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

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and sub contractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

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

(1) The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

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

Time- tables	Goals for minority participation for each trade	Goals for female participation in each trade
	11.4%	6.9%

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

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a



geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

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

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

(4) As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

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

(1) As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

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

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

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

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

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

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

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

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

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where

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

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

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

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

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

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

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

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one

month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

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

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 C.F.R. pt. 60-3.

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

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

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

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

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

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

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

(10) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

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

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

(13) The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 C.F.R. 60-4.8.

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

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

#### **10.0 Prohibition of Segregated Facilities**

(1) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(2) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

- (3) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

**11.0 Davis-Bacon Act** (40 U.S.C. §§ 3141-3144, and §§ 3146-3148, and 29 C.F.R. pt. 5)

(The requirements of the Davis-Bacon Act and this section are not applicable to projects funded by the Land and Water Conservation Fund.)

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 C.F.R. pt. 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

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

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including

the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

- (C) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- (iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
- (2) Withholding. The (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
- (3) Payrolls and basic records.
- (i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social

security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis–Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis–Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 C.F.R. 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime Contractor to require a subcontractor to provide addresses and social security numbers to the prime Contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).
- (B) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 C.F.R. pt. 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 C.F.R. pt. 5, and that such information is correct and complete;
  - (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 C.F.R. pt. 3;



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

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

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

(iii) The Contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the (write the name of the agency) or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal Agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 C.F.R. 5.12.

(4) Apprentices and trainees—

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no

longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (ii) Trainees. Except as provided in 29 C.F.R. 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 C.F.R. pt. 30.
- (5) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 C.F.R. pt. 3, which are incorporated by reference in this contract.
- (6) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 C.F.R. 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal Agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 C.F.R. 5.5.
- (7) Contract termination: debarment. A breach of the contract clauses in 29 C.F.R. 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 C.F.R. 5.12.
- (8) Compliance with Davis–Bacon and Related Act requirements. All rulings and interpretations of the Davis–Bacon and Related Acts contained in 29 C.F.R. pts. 1, 3, and 5 are herein incorporated by reference in this contract.
- (9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. pts. 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of

its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

- (i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis–Bacon Act or 29 C.F.R. 5.12(a)(1).
- (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis–Bacon Act or 29 C.F.R. 5.12(a)(1).
- (iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

**11.0 Copeland “Anti-Kickback” Act**

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

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

- (1) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be

withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

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

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

- (1) A contract award (see 2 C.F.R. 180.220) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. 180 that implement Executive Orders 12549 (3 C.F.R. pt. 1986 Comp., p. 189) and 12689 (3 C.F.R. pt. 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.
- (2) The contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. 180.995) or its affiliates (defined at 2 C.F.R. 180.905) are excluded (defined at 2 C.F.R. 180.940) or disqualified (defined at 2 C.F.R. 180.935).
- (3) The contractor must comply with 2 C.F.R. pt. 180, subpart C and the regulations of the granting Federal Agency regarding suspension and debarment, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- (4) This certification is a material representation of fact relied upon by the Owner. If it is later determined that the Contractor did not comply with 2 C.F.R. pt. 180, subpart C in addition to remedies available to the Owner, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (5) By submitting a bid, the bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

### **14.0 Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352)**

- (1) Contractors that apply or bid for an award exceeding \$100,000 agree to file the required certification (set forth below), in compliance with 31 U.S.C. § 1352 (as amended).
- (2) Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352.

- (3) Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

#### CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

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

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

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

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

#### **15.0 Procurement of Recovered Materials**

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

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

#### **16.0 Fair Labor Standards Act**

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

#### **17.0 Access to Records and Reports**

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

#### **18.0 Occupational Health and Safety Act**

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

#### **19.0 Rights to Inventions**

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 C.F.R. pt. 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 C.F.R. 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

#### **20.0 Energy Conservation**

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

#### **21.0 Clean Air Act and Federal Water Pollution Control Act**

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

- (3) The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance.

## **22.0 Contractor Employee Whistleblower Rights and Requirement to Inform Employees of Whistleblower Rights**

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

## **23.0 Veteran's Preference**

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

## **24.0 Drug Free Workplace Act**

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

## **25.0 Access Requirements for Persons with Disabilities**

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

## **26.0 Seismic Safety**

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

## **27.0 Domestic Preference for Procurements**

As appropriate and to the extent consistent with law, the Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this contract. For purposes of this section:

- (1) “Produced in the United States” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) “Manufactured products” means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

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

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

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



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

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## SECTION 00290 – BASIS OF BIDS

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. The basis of bids is a general description of the work and materials which shall be included in the bid items listed on the bid proposal. Bid item prices shall generally reflect the scope of work described below. It shall be understood by the bidder that the total bid price listed on the bid proposal shall represent total compensation for the entire project based on the estimated quantities given. Due to the complex nature of this project, some overlap of work items is inevitable and some minor items may not be included below. It is the contractors responsibility to be sure that all work items are included in his/her bid prices.
- B. Payment after the award of the contract will be based on the number of units completed for unit price items or on the percentage of each lump sum item for the work that has been completed or as outlined I the specifications. Payment will not be made for items that have not been complete.

#### 1.2 CONCRETE SPLASH PAD SURFACE

- A. Item No. 1 – Concrete Splash Pad Surface:
  - 1. This item shall consist of all labor, equipment and materials associated with the grading and placement of a concrete splash pad surface and corresponding sidewalks. This item shall include the placement of approximately 4,880 square feet of concrete (minimum 4,000 psi). The thickness of the play pad area shall be a minimum of 6 inches with #3 fiberglass rebar spaced at 12 inch on centers each way (2,421 square feet). The sidewalk or overspray zone shall be a minimum thickness of 4 inches with #3 fiberglass rebar spaced at 24 inch on centers each way (2,204 square feet). The sidewalk from the proposed splash pad to the parking lot shall be a minimum thickness of 4 inches with #3 fiberglass rebar spaced at 24 inch on centers each way (253 square feet). All concrete shall be placed over 6" thick aggregate base, include the rebar described above, provide copper clad ground rods and #6 copper wire to properly ground all features, broom finish, slope all surfaces to the drains at a minimum of 1.2% and maximum of 1.8%, and any and all other items required to provide a fully functional and successful concrete pad. The actual layout and features of the pad as provided from splash pad manufacturer are attached at the end of the specifications.
  - 2. The City of Malden will be performing in-kind services for the project. They will perform water valving and line installation and drainage installation prior to the contractor placing the aggregate base and concrete. The Contractor will be required to work with the City of Malden to coordinate the installation and scheduling of the planned work.
  - 3. Method of Payment: **Square Feet.**

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION (NOT USED)

## END OF SECTION 00290

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## SECTION 00300 – BID PROPOSAL

Proposal of \_\_\_\_\_  
(Doing business as a corporation/ a partnership/ an individual--indicate which)  
(Hereinafter called "Bidder")

To \_\_\_\_\_  
(Hereinafter called "Owner")

Gentlemen:

The Bidder, in compliance with your invitation for bids for Frisco Park Improvements Splash Pad Concrete having examined the specifications with related documents and the site of the proposed work, and being familiar with all the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all materials and supplies; in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder agrees that the Work will be substantially complete and ready for final payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

Bidder further agrees to the conditions and amounts of Liquidated Damages in accordance with the General Conditions and as indicated in the Agreement.

The Bidder acknowledges receipt of the following addenda:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Bidder agrees to perform all the work described in the Contract Documents for the prices shown on the attached Bid Schedule.

The Bidder understands that the quantities given in the attached Bid Schedule are not guaranteed by the Owner and are used solely for the purpose of comparing bids and awarding the contract, and may or may not represent the actual quantities encountered on the job; and that the sum of the products of the quantities listed in the attached Bid Schedule, multiplied by the unit price bid shall constitute the gross sum bid. Payment after the award of the contract will be based on measured in place quantities where measurable units are given in the Bid Schedule.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding. The Bidder also understands that the Owner reserves the right to increase or decrease the amount and type of work to be done.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, the Bidder will execute the attached formal contract within fifteen (15) days and deliver a Surety Bond or Bonds as required by the General Conditions.

The bid security attached in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_ ) is to be immediately forfeited to the Owner, in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

Bidder:

Signature:

Title:

Address:

Phone:

(SEAL - if bid is by a corporation)

#### END OF SECTION 00300

Attached:

- Bid Schedule - a1
- Affidavit of Federal Work Authorization Program
- Affidavit of Compliance with Prevailing Wage Law
- Certification of Non-Segregated Facilities
- Certification Regarding Debarment
- Equal Opportunity Compliance
- Build America Buy America Certification

CONCRETE SPLASH PAD SURFACE

#	Description	Units	Qty	Unit Price	Subtotal
1	Concrete Splash Pad Surface	SF	4,880	\$ _____	\$ _____

TOTAL BASE BID CONTRACT PRICE: \$ \_\_\_\_\_

\_\_\_\_\_  
(in words)

by \_\_\_\_\_  
(signature)

\_\_\_\_\_  
(print)

END OF BID SCHEDULE

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**SECTION 00410 – BID BOND**

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned, \_\_\_\_\_ as  
Principal, and \_\_\_\_\_ as  
Surety, are hereby held and firmly bound unto the City of Malden, MO, as Owner in the  
penal sum of \_\_\_\_\_, \_\_\_\_\_ for the payment of which, well and truly be made, we  
hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

Signed, this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

The condition of the above obligation is such that whereas the Principal has submitted to The City of Malden a certain Bid attached hereto and hereby made a part hereof to enter into a contract in writing for the Construction of the Concrete Splash Pad Surface for the Improvements to Frisco Park. (Contractor to Circle Contract Submitting on or strikethrough non-submittal Contract).

**NOW, THEREFORE:**

- A. If said Bid shall be rejected, or in the alternate,
- B. If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value received, hereby stipulated and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by and extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

\_\_\_\_\_(L.S.)  
(Principal)

\_\_\_\_\_  
(Surety)

By: \_\_\_\_\_

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

**END OF SECTION 00410**

**SECTION 00490 - NOTICE OF AWARD**

TO:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PROJECT DESCRIPTION: Frisco Park Improvements

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated \_\_\_\_\_, 20\_\_, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \_\_\_\_\_ Dollars and \_\_\_\_/100 (\$ \_\_\_\_).

You are required by the Information for Bidders to execute the Agreement and furnish the Certificates of insurance within fifteen (15) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said insurance within fifteen (15) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

For:

Owner

For: \_\_\_\_\_, Title: \_\_\_\_\_

**ACCEPTANCE OF NOTICE**

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by \_\_\_\_\_, This the \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

By \_\_\_\_\_, Title: \_\_\_\_\_

**END OF SECTION 00490**

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**AGREEMENT**

THIS AGREEMENT is by and between

City of Malden

(Owner) and

(Contractor).

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

**ARTICLE 1 - WORK**

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

**Frisco Park Improvements**

**ARTICLE 2 - THE PROJECT**

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

**Frisco Park Improvements**

**ARTICLE 3 - ENGINEER**

3.01 The Project has been designed by

**Smith&Company, Inc., 901 Vine Street, Poplar Bluff, MO 63901**

(Engineer), who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

**ARTICLE 4 - CONTRACT TIMES**

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Days to Achieve Substantial Completion and Final Payment

A. The Work will be substantially completed within 90 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 90 days after the date when the Contract Times commence to run.

#### 4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$1,000 for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

#### ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

A. For all Work other than Unit Price Work, a Lump Sum as indicated on the attached Bid Schedule (Page a-1 of Section 00300).

B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated on the attached Bid Schedule (Page a-1 of Section 00300):

As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.

C. For all Work, at the prices stated in Contractor's Bid, attached hereto on Page a-1 of Section 00300.

#### ARTICLE 6 - PAYMENT PROCEDURES

##### 6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

##### 6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment within 30 calendar days after receipt of an approvable partial payment request by the Engineer during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:

a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, retainage may be reduced to 5%; and

b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

#### 6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

#### ARTICLE 7 - INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of 12 percent per annum or the maximum percentage allowable by law in the state in which the work is performed.

#### ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.

E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## ARTICLE 9 - CONTRACT DOCUMENTS

### 9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 6, inclusive).
2. Other bonds
  - a. No additional bonds required.
3. General Conditions.
4. Supplementary Conditions.
5. Specifications as listed in the table of contents of the Project Manual.
6. Drawings consisting of N/A sheets with each sheet bearing the following general title: N/A.
7. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive).
8. Exhibits to this Agreement (enumerated as follows):
  - a. Documentation submitted by Contractor prior to Notice of Award.

9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

- a. Notice to Proceed.
- b. Work Change Directives.
- c. Change Order(s).

10. The Bid Proposal and attached Bid Schedule.



11. Notice of Award.

12. Special Supplementary Condition.

13. Wage Rates.

14. Table of Contents.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## ARTICLE 10 - MISCELLANEOUS

### 10.01 Terms

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### 10.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### 10.03 Successors and Assigns

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### 10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on \_\_\_\_\_, \_\_\_\_\_ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

**City of Malden**

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: **Denton Kooyman, Mayor**

Title: \_\_\_\_\_

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: **Mandy Lewis, City Clerk**

Title: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

**City of Malden**

**201 S. Madison Street**

**Malden, MO 63863**

(If Owner is a corporation, attach evidence of authority to sign.  
If Owner is a public body, attach evidence of authority to sign  
and resolution or other documents authorizing execution of  
Owner-Contractor Agreement.)

License No.: \_\_\_\_\_  
(Where applicable)

Agent for service or process: \_\_\_\_\_

(If Contractor is a corporation or a partnership,  
attach evidence of authority to sign.)

## SECTION 00610 - PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_ hereinafter called Principal, and  
(Corporation, Partnership, or Individual)

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto:

City of Malden, Missouri

\_\_\_\_\_  
(Name of Owner)

201 South Madison, Malden, MO 63863

\_\_\_\_\_  
(Address of Owner)

hereinafter called OWNER, in the penal sum of

\_\_\_\_\_ Dollars and \_\_\_\_/100 (\$ \_\_\_\_\_), in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, a copy of which is hereto attached and made a part hereof for the construction of: **Concrete Splash Pad Surface for the Improvements to Frisco Park.**

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_ counterparts, each one of which shall be deemed an original, this the \_\_\_\_ day of \_\_\_\_, 20\_\_.

ATTEST:

<p>_____ (Principal) Secretary</p>	<p>_____ Principal (print)</p> <p>_____ (SEAL)</p>
--	--

<p>_____ Witness as to Principal</p> <p>_____ (Address)</p> <p>_____ (Address)</p>	<p>By _____ Signature</p> <p>_____ (Address)</p> <p>_____ (Address)</p>
--	---

ATTEST:

<p>_____ Witness as to Surety</p> <p>_____ (Address)</p> <p>_____ (Address)</p>	<p>_____ Surety</p> <p>By _____ Attorney-in-Fact</p> <p>_____ (Address)</p> <p>_____ (Address)</p>
---	--

**NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.**

**IMPORTANT:** Surety companies executing BONDS must appear on the Treasure Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

**END OF SECTION 00610**

SECTION 00620 - PAYMENT BOND

KNOWN ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_ hereinafter called Principal, and  
(Corporation, Partnership, or Individual)

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto:

City of Malden, Missouri

\_\_\_\_\_  
(Name of Owner)

201 South Madison, Malden, MO 63863

\_\_\_\_\_  
(Address of Owner)

hereinafter called OWNER, in the penal sum of

\_\_\_\_\_ Dollars and /100 (\$ \_\_\_\_\_), in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly be these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the principal entered into a certain contract with the OWNER, dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, a copy of which is hereto attached and made a part hereof for the construction of: **Concrete Splash Pad Surface for the Improvements to Frisco Park.**

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four counterparts, each one of which shall be deemed an original, this the \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ATTEST:

\_\_\_\_\_  
(Principal) Secretary

\_\_\_\_\_  
Principal (print)

\_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
Witness as to Principal

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

By

\_\_\_\_\_  
Signature

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

ATTEST:

\_\_\_\_\_  
Witness as to Surety

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
Surety

By

\_\_\_\_\_  
Attorney-in-Fact

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

**NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.**

**IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.**

**END OF SECTION 00620**

**SECTION 00690 - NOTICE TO PROCEED**

Date: \_\_\_\_\_

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project: Frisco Park Improvements  
\_\_\_\_\_

You are hereby notified to commence WORK in accordance with the Agreement dated \_\_\_\_\_, 20\_\_\_\_,  
on or before \_\_\_\_\_, 20\_\_\_\_, and you are to complete the WORK within (90) consecutive calendar days  
thereafter. The date of completion of all WORK is therefore \_\_\_\_\_, 20\_\_\_\_\_.

Owner: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

**ACCEPTANCE OF NOTICE**

Receipt of the above NOTICE TO PROCEED  
is hereby acknowledged by

\_\_\_\_\_

this the \_\_\_\_\_, 20\_\_\_\_,

By \_\_\_\_\_

Title \_\_\_\_\_

**END OF SECTION 00690**

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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*A Practice Division of the*  
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Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	<b>Page</b>
Article 1 – Definitions and Terminology .....	1
1.01 Defined Terms.....	1
1.02 Terminology .....	5
Article 2 – Preliminary Matters.....	6
2.01 Delivery of Bonds and Evidence of Insurance.....	6
2.02 Copies of Documents.....	6
2.03 Commencement of Contract Times; Notice to Proceed .....	6
2.04 Starting the Work .....	7
2.05 Before Starting Construction .....	7
2.06 Preconstruction Conference; Designation of Authorized Representatives .....	7
2.07 Initial Acceptance of Schedules .....	7
Article 3 – Contract Documents: Intent, Amending, Reuse .....	8
3.01 Intent.....	8
3.02 Reference Standards .....	8
3.03 Reporting and Resolving Discrepancies .....	8
3.04 Amending and Supplementing Contract Documents .....	9
3.05 Reuse of Documents .....	10
3.06 Electronic Data.....	10
Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points .....	10
4.01 Availability of Lands .....	10
4.02 Subsurface and Physical Conditions .....	11
4.03 Differing Subsurface or Physical Conditions.....	11
4.04 Underground Facilities .....	13
4.05 Reference Points .....	14
4.06 Hazardous Environmental Condition at Site.....	14
Article 5 – Bonds and Insurance .....	16
5.01 Performance, Payment, and Other Bonds .....	16
5.02 Licensed Sureties and Insurers .....	16
5.03 Certificates of Insurance .....	16
5.04 Contractor’s Insurance .....	17
5.05 Owner’s Liability Insurance .....	18
5.06 Property Insurance .....	18
5.07 Waiver of Rights .....	20
5.08 Receipt and Application of Insurance Proceeds .....	21
5.09 Acceptance of Bonds and Insurance; Option to Replace.....	21

5.10	Partial Utilization, Acknowledgment of Property Insurer .....	21
Article 6 –	Contractor’s Responsibilities .....	22
6.01	Supervision and Superintendence .....	22
6.02	Labor; Working Hours.....	22
6.03	Services, Materials, and Equipment .....	22
6.04	Progress Schedule .....	23
6.05	Substitutes and “Or-Equals” .....	23
6.06	Concerning Subcontractors, Suppliers, and Others .....	25
6.07	Patent Fees and Royalties .....	26
6.08	Permits.....	27
6.09	Laws and Regulations .....	27
6.10	Taxes .....	28
6.11	Use of Site and Other Areas .....	28
6.12	Record Documents.....	29
6.13	Safety and Protection .....	29
6.14	Safety Representative .....	30
6.15	Hazard Communication Programs .....	30
6.16	Emergencies .....	30
6.17	Shop Drawings and Samples .....	30
6.18	Continuing the Work .....	32
6.19	Contractor’s General Warranty and Guarantee.....	32
6.20	Indemnification .....	33
6.21	Delegation of Professional Design Services .....	34
Article 7 –	Other Work at the Site.....	34
7.01	Related Work at Site .....	34
7.02	Coordination.....	35
7.03	Legal Relationships.....	35
Article 8 –	Owner’s Responsibilities .....	36
8.01	Communications to Contractor.....	36
8.02	Replacement of Engineer.....	36
8.03	Furnish Data.....	36
8.04	Pay When Due .....	36
8.05	Lands and Easements; Reports and Tests .....	36
8.06	Insurance .....	36
8.07	Change Orders.....	36
8.08	Inspections, Tests, and Approvals .....	36
8.09	Limitations on Owner’s Responsibilities .....	36
8.10	Undisclosed Hazardous Environmental Condition.....	37
8.11	Evidence of Financial Arrangements .....	37
8.12	Compliance with Safety Program.....	37
Article 9 –	Engineer’s Status During Construction .....	37
9.01	Owner’s Representative .....	37
9.02	Visits to Site .....	37
9.03	Project Representative .....	38

9.04	Authorized Variations in Work .....	38
9.05	Rejecting Defective Work .....	38
9.06	Shop Drawings, Change Orders and Payments .....	38
9.07	Determinations for Unit Price Work .....	38
9.08	Decisions on Requirements of Contract Documents and Acceptability of Work .....	39
9.09	Limitations on Engineer's Authority and Responsibilities.....	39
9.10	Compliance with Safety Program.....	40
Article 10 –	Changes in the Work; Claims .....	40
10.01	Authorized Changes in the Work .....	40
10.02	Unauthorized Changes in the Work .....	40
10.03	Execution of Change Orders.....	40
10.04	Notification to Surety.....	41
10.05	Claims.....	41
Article 11 –	Cost of the Work; Allowances; Unit Price Work.....	42
11.01	Cost of the Work .....	42
11.02	Allowances .....	44
11.03	Unit Price Work .....	45
Article 12 –	Change of Contract Price; Change of Contract Times.....	45
12.01	Change of Contract Price.....	45
12.02	Change of Contract Times .....	47
12.03	Delays.....	47
Article 13 –	Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....	48
13.01	Notice of Defects .....	48
13.02	Access to Work .....	48
13.03	Tests and Inspections .....	48
13.04	Uncovering Work.....	49
13.05	Owner May Stop the Work.....	49
13.06	Correction or Removal of Defective Work.....	49
13.07	Correction Period .....	50
13.08	Acceptance of Defective Work .....	51
13.09	Owner May Correct Defective Work .....	51
Article 14 –	Payments to Contractor and Completion.....	52
14.01	Schedule of Values .....	52
14.02	Progress Payments .....	52
14.03	Contractor's Warranty of Title .....	54
14.04	Substantial Completion.....	55
14.05	Partial Utilization .....	55
14.06	Final Inspection.....	56
14.07	Final Payment .....	56
14.08	Final Completion Delayed.....	57
14.09	Waiver of Claims .....	58

Article 15 – Suspension of Work and Termination .....	58
15.01 Owner May Suspend Work .....	58
15.02 Owner May Terminate for Cause .....	58
15.03 Owner May Terminate For Convenience.....	59
15.04 Contractor May Stop Work or Terminate .....	60
Article 16 – Dispute Resolution .....	60
16.01 Methods and Procedures.....	60
Article 17 – Miscellaneous .....	61
17.01 Giving Notice.....	61
17.02 Computation of Times .....	61
17.03 Cumulative Remedies .....	61
17.04 Survival of Obligations.....	61
17.05 Controlling Law .....	61
17.06 Headings.....	61

## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.



27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

### B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

### C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

### D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

### E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.01 *Delivery of Bonds and Evidence of Insurance***

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### **2.03 *Commencement of Contract Times; Notice to Proceed***

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

#### 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

#### 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

#### 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

#### 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

*B. Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

*3.04 Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the



Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to

permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
  - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of



them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

#### 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

#### 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and
  - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its



use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner

and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 *Use of Site and Other Areas*

##### A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

## 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

## 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.

- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

*C. Submittal Procedures:*

- 1. Before submitting each Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
- 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

*D. Engineer's Review:*

- 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the

Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

*E. Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

**6.18** *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

**6.19** *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

## 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe



access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## ARTICLE 8 – OWNER’S RESPONSIBILITIES

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner’s duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

### 8.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

### 8.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

**8.10** *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

**8.11** *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

**8.12** *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

**9.01** *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

**9.02** *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations

on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

**9.08** *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

**9.09** *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,

and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

#### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of

executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  - 1. deny the Claim in whole or in part;
  - 2. approve the Claim; or
  - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
  - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
  - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.



4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
  2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
    - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
    - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in

the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

*C. Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

**11.03 Unit Price Work**

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
  1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  2. there is no corresponding adjustment with respect to any other item of Work; and
  3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

**12.01 Change of Contract Price**

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
  - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
  - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
  - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
  - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
  - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
  - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### **13.01 *Notice of Defects***

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### **13.02 *Access to Work***

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### **13.03 *Tests and Inspections***

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

#### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.



### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### **14.01 *Schedule of Values***

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### **14.02 *Progress Payments***

#### ***A. Applications for Payments:***

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### ***B. Review of Applications:***

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment:*

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
- 2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
- 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

*14.03 Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and

- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

*14.08 Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

#### 15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor's repeated disregard of the authority of Engineer; or
4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);



2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

#### *15.03 Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

### ARTICLE 16 – DISPUTE RESOLUTION

#### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### **17.01 *Giving Notice***

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### **17.02 *Computation of Times***

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### **17.03 *Cumulative Remedies***

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### **17.04 *Survival of Obligations***

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### **17.05 *Controlling Law***

- A. This Contract is to be governed by the law of the state in which the Project is located.

### **17.06 *Headings***

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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**SECTION 00800 – SUPPLEMENTARY CONDITIONS**

**GENERAL STATEMENT:** *There are no bonding requirements for this project. Any reference to bid bond, performance bond, or payment bond shall be omitted from the project.*

*These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.*

*The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.*

**SC –2.01.B Delete Paragraph 2.01.B in its entirety and insert the following in its place:**

B. Contractor shall deliver certificates of insurance with the executed agreement as set forth in Article 21 of the Instructions to Bidders.

**SC-2.02 Amend Paragraph 2.02 as follows:**

Change the word “ten” in the first sentence of paragraph 2.02.A to “three (3)” and add a new paragraph B as follows:

B. Electronic data will be furnished upon request at a cost as established by the Engineer for data preparation and file transfer.

**SC-2.03 Amend the first and third sentences of Paragraph 2.03.A by striking out the following words:**

First Sentence:

*“on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given,”*

Third Sentence:

*“In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.”*

**SC -2.05. Add a new Paragraph 2.05.B as follows:**

B. Where specifically stated in the Instructions to Bidders or on the Bid Schedule form as provided by the Owner, the Bid Schedule shall be considered as an acceptable Schedule of Values.

**SC-4.02 Delete Paragraphs 4.02.A and 4.02.B in their entirety and insert the following:**

A. No reports of explorations or tests of subsurface conditions at or contiguous to the Site are known to the Owner or Engineer.

**SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:**

A. No reports or drawings related to Hazardous Environmental Conditions are known to Owner or Engineer.

**SC -5.03.B Delete Paragraph 5.03.B in its entirety.**

**SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:**

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

- |   |                    |
|---|--------------------|
| a. State:                                     | Statutory          |
| b. Applicable Federal (e.g., Longshoreman's): | Statutory          |
| c. Employer's Liability:                      | <u>\$1,000,000</u> |

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

- |   |                    |
|---|--------------------|
| a. General Aggregate  | <u>\$2,000,000</u> |
| b. Products – Completed Operations Aggregate  | <u>\$2,000,000</u> |
| c. Personal and Advertising Injury  | <u>\$1,000,000</u> |
| d. Each Occurrence (Bodily Injury and Property Damage)  | <u>\$1,000,000</u> |
| e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable. |                    |
| f. Excess or Umbrella Liability   |                    |
| 1) General Aggregate  | <u>\$2,000,000</u> |
| 2) Each Occurrence  | <u>\$2,000,000</u> |

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

- |                             |                    |
|-----------------------------|--------------------|
| a. Bodily Injury:           |                    |
| 1) Each person              | <u>\$ N/A</u>      |
| 2) Each Accident            | <u>\$ N/A</u>      |
| b. Property Damage:         |                    |
| 1) Each Accident            | <u>\$ N/A</u>      |
| c. Combined Single Limit of | <u>\$1,000,000</u> |

4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

- |                     |                    |
|---------------------|--------------------|
| a. Bodily Injury:   |                    |
| 1) Each Accident    | <u>\$1,000,000</u> |
| 2) Annual Aggregate | <u>\$2,000,000</u> |
| b. Property Damage: |                    |
| 1) Each Accident    | <u>\$1,000,000</u> |

2) Annual Aggregate

\$2,000,000

5. In addition to the insurance requirements above, the Contractor shall provide the following types of insurance with coverage for not less than the amounts given below:

6. The following individuals or entities shall be listed as additional insured on all insurance required to be provided by the Contractor:

- a. City of Malden, Missouri.
- b. S.H. Smith & Company, Poplar Bluff, Missouri.

SC -5.05 Delete Paragraph 5.05 in its entirety.

**SC -5.06 Delete Paragraph 5.06 in its entirety.**

**SC -5.07 Delete Paragraph 5.07 in its entirety.**

**SC -5.08 Delete Paragraph 5.08 in its entirety.**

**SC -5.09 Delete Paragraph 5.09 in its entirety.**

**SC -5.10 Delete Paragraph 5.10 in its entirety.**

**SC -6.02.B Add two new Sentences to the end of paragraph 6.02.B:**

Night work may be undertaken as a regular procedure with the permission of Owner; such permission shall be requested in writing through Owner's Engineer and may be revoked by Owner at any time if Contractor fails to maintain adequate equipment and supervision of proper prosecution and control of the work at night. Night work shall be that work occurring between sunset and sunrise.

**SC-6.06.B Add a new Paragraph immediately after Paragraph 6.06.B:**

1. The apparent Successful Bidder and any other Bidder so requested, shall within five (5) days after Bid opening, submit to the Owner a list of all Subcontractors and Suppliers proposed for use on the Project. Such list shall, for each Subcontractor and Supplier, be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification requested by the Owner.

2. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increase (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract Award.

- a. If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors or Suppliers. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder.
- b. Any Subcontractor or Supplier so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement.

**SC -6.06.G Delete the second and third sentence of Paragraph 6.06.G.****SC-6.06.H Add a new paragraph immediately after Paragraph 6.06.G:**

H. Owner or Engineer may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier.

**SC-6.08 Add a new paragraph immediately after Paragraph 6.08.A:**

1. The Owner shall be responsible for the following permits:
  - a. None.
2. Contractor shall be responsible for obtaining and paying for any other permits necessary for construction of this Project.

**SC-6.09 Insert a new Paragraph 6.09.D as follows:**

D. The Contractor shall give all notices required by and shall comply with applicable labor laws, non-discrimination provisions, wage rates and other federal laws including but not limited to the Fair Labor Standards Act of 1938, the Work Hours Act of 1962 and Title VI of the Civil Rights Act of 1964.

**SC-6.10 Add a new paragraph immediately after Paragraph 6.10.A:**

B. Owner is exempt from payment of sales and compensating use taxes of the State of Missouri and of Cities and Counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to the Contractor for use in the purchase of supplies and materials to be incorporated in the Work.
2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

**SC-6.17 Add the following new paragraphs immediately after Paragraph 6.17.E:**

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than two re-submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.

G. In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

**SC -8.06 Delete Paragraph 8.06 in its entirety.****SC -9.07.A Delete Paragraph 9.07.A in its entirety and insert the following in its place:**

A. Engineer will have authority to determine the actual quantities and classifications of items of Unit Price Work performed by Contractor, and the written decision of Engineer on such matters will be final, binding on Owner and Contractor and not subject to appeal.

**SC 12.03.A Insert the following Paragraph immediately following Paragraph 12.03.A:**

1. The weather experienced at the project site during the contract period must be found to be unusually severe or abnormal than adverse weather normally anticipated for any given month. The abnormal weather must actually cause a delay to the completion of the



project. The delay must be beyond the control of the Contractor. The following schedule of monthly anticipated adverse weather is based on National Oceanic and Atmospheric Administration and Midwestern Regional Climate Center data and will constitute the base line for weather time evaluations:

Contracts	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Calendar Days	5	5	8	7	4	3	3	2	2	5	7	7
Working Days	4	4	6	5	3	3	2	2	2	4	5	6

**SC-13.03.B Modify Paragraph 13.03.B as follows:**

Delete the text "all inspections, tests, or approvals required by the Contract Documents" and insert the following text in its place:

"only those inspections, tests or approvals required by the Contract Documents as the Owner's responsibility and"

**SC -14.02.A.1 Modify Paragraph 14.02.A.1 by inserting the following sentence after the last sentence:**

Payment for such materials and equipment shall be based only upon the actual cost of the materials and equipment to Contractor and shall not include any overhead or profit to Contractor.

**SC -14.02.B.5.e Insert the following Paragraph immediately following Paragraph 14.02.B.5.d:**

- e. liability for liquidated damages has been incurred by Contractor.

**SC-14.02.C Amend Paragraph 14.02.C.1 as follows:**

Delete the text "Ten days" in the first sentence of Paragraph 14.02.C.1 and replace with "Thirty days".

Add the following text to the end of the first sentence in paragraph 14.02.C.1 immediately following the word "Contractor": "in accordance with the provisions of the Prompt Payment Act, 5 CFR 1315."

**SC-16.01 Delete Paragraph 16.01 in its entirety and insert the following in its place:**

**SC-16.01 Meet to Confer and Negotiate**

A. Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after receipt of written notice of Engineer's action or decision unless, within that time period, Owner or Contractor gives to the other party written notice of intent to submit the Claim to a process of bilateral negotiations as set forth below.

B. Within 30 days of the delivery of such notice, Owner and Contractor shall meet and confer regarding the Claim. A good-faith effort to negotiate resolution shall be made by both parties.

C. If the negotiations contemplated by Paragraph SC-16.01.B are unsuccessful, management representatives of Owner and Contractor at least one tier above the individuals who met under SC-16.01.B shall meet, confer, and negotiate within 30 days of the closure of the unsuccessful negotiations.

D. If the Claim is not resolved by negotiation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the negotiations unless, within that time period, Owner or Contractor:

1. gives to the other party written notice of intent to submit the Claim to a court of competent jurisdiction, or
2. agrees with the other party to submit the Claim to another dispute resolution process.

E. Notwithstanding any applicable statute of limitations, a party giving notice under Paragraph SC-16.01.D.1 shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and Engineer's action or denial shall become final and binding.

**END OF SECTION 00800**

## SECTION 00830 – WAGE RATES

### PART 1 - GENERAL

The following is a list of required wage rates that must be paid at a minimum to all employees of the Contractor and any Subcontractors for Work on this project. In the case of conflicts between two or more rate requirements, the highest rate shall be paid.

#### 1.1 REQUIRED WAGE RATES

- A. Official Wage Rate Issue for this Work: Use the latest modification as of 10 days prior to the scheduled date to open bids. Any modifications subsequent to this date shall not be used.
- B. The appropriate wage rates issued as of the Advertisement for Bids shall be attached hereto. 10 days prior to the scheduled date to open bids or as available, the Owner shall transmit to all prospective bidders, by addendum, the latest wage rates issued if a change has occurred. Each Bidder is ultimately responsible for ensuring that the appropriate wage rates are used in the calculation of his or her bid.
- C. Required State Prevailing Wage:
  - 1. **Annual Wage Order No. 31 Section 035 Dunklin County, MO, 4/17/2024.**
- D. Required Federal Prevailing Wage:
  - 1. **General Decision Number: MO20240001, Modification #4, April 18, 2024.**

#### 1.2 PENALTIES

- A. The Contractor shall forfeit a penalty to the Owner of ten dollars (\$10.00) per day per violation if a worker is paid less than the prevailing rate for any Work done under the Contract by the Contractor or by any Subcontractor under them.
- B. The Owner shall withhold and retain amounts due and owing as a result of any violation of the Prevailing Wage Law.

#### 1.3 SPECIAL BONDING REQUIREMENTS

- A. The Contractor shall include provisions in all Bonds required for this Work that will guarantee the faithful performance of these wage rate requirements.

#### 1.4 CERTIFIED PAYROLLS

- A. Weekly Certified Payrolls shall be prepared by the Contractor and each Subcontractor and there kept on file for a period of one year following the completion of the Work.
- B. Certified Payrolls shall contain clear record of all hours worked by all workers employed on this Contract indicating the employee's work classification (occupational title), hours worked and rate of pay.
- C. Prior to submitting requests for partial payment and preferably each week, the Contractor shall submit Certified Payrolls to the Owner along with Certified Payrolls for each Subcontractor for review and public record.

The Contractor shall submit a copy of all Certified Payrolls to the Engineer as they are submitted to the Owner for review by the Engineer.

**1.5 FINAL CERTIFICATION**

- A. Before final payment will be made for the Work, the Contractor shall submit an Affidavit of Compliance with the Prevailing Wage Law to the Owner.

**END OF SECTION 00830**

*Attached:*

*State Wage Rates*

~~*Federal Wage Rates*~~

*US Department of Labor, suggested Certified Payroll Format*

*Affidavit of Compliance with Prevailing Wage Law*

# Missouri

## Division of Labor Standards

### WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

## Annual Wage Order No. 31

Section 035  
**DUNKLIN COUNTY**

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

Original Signed by

Todd Smith, Director  
Division of Labor Standards

Filed With Secretary of State: March 8, 2024

Last Date Objections May Be Filed: April 8, 2024

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$20.38*
Boilermaker	\$20.38*
Bricklayer-Stone Mason	\$20.38*
Carpenter	\$57.22
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$20.38*
Plasterer	
Communication Technician	\$20.38*
Electrician (Inside Wireman)	\$20.38*
Electrician Outside Lineman	\$20.38*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	\$20.38*
Glazier	\$20.38*
Ironworker	\$20.38*
Laborer	\$42.18
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$20.38*
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$20.38*
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$42.24
Plumber	\$69.44
Pipe Fitter	
Roofer	\$20.38*
Sheet Metal Worker	\$20.38*
Sprinkler Fitter	\$20.38*
Truck Driver	\$20.38*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

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

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

Heavy Construction Rates for  
DUNKLIN County

Section 035

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$20.38*
Millwright	
Pile Driver	
Electrician (Outside Lineman)	\$20.38*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$47.59
General Laborer	
Skilled Laborer	
Operating Engineer	\$63.33
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$20.38*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

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

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

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

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

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

# OVERTIME and HOLIDAYS

## OVERTIME

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

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

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

## HOLIDAYS

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

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





MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS  
DIVISION OF LABOR STANDARDS

**AFFIDAVIT  
COMPLIANCE WITH THE PREVAILING WAGE LAW**

Before me, the undersigned Notary Public, in and for the County of \_\_\_\_\_, State of \_\_\_\_\_, personally came and appeared (name and title) \_\_\_\_\_ of the (name of 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, Revised Statutes of Missouri, pertaining to the payment of wages to workers employed on public works projects have been fully satisfied. There has been no exception to the full and complete compliance with said provisions and requirements with Annual Wage Order No. \_\_\_\_\_ Section \_\_\_\_\_ issued by the Division of Labor Standards (name of project) \_\_\_\_\_ located at (name of institution) \_\_\_\_\_ in \_\_\_\_\_ County, Missouri, and completed on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Signature

Subscribed and sworn to me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.  
My commission expires \_\_\_\_\_, \_\_\_\_\_.  
Notary Public

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Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

NAME OF CONTRACTOR <input type="checkbox"/> OR SUBCONTRACTOR <input type="checkbox"/>		ADDRESS		OMB No.: 1215-0149 Expires: 03/31/2006	
PAYROLL NO.		FOR WEEK ENDING		PROJECT AND LOCATION	
PROJECT OR CONTRACT NO.					

(1) NAME, ADDRESS, AND SOCIAL SECURITY NUMBER OF EMPLOYEE	(2) NO. OF WITHHOLDING EXEMPTIONS	(3) WORK CLASSIFICATION	O. T. OR S.T.	(4) DAY AND DATE							(5) TOTAL HOURS	(6) RATE OF PAY	(7) GROSS AMOUNT EARNED	(8) DEDUCTIONS				(9) NET WAGES PAID FOR WEEK	
				HOURS WORKED EACH DAY										FICA	WITH- HOLDING TAX	TOTAL DEDUCTIONS	OTHER		
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We estimate that it will take an average of 56 minutes to complete this collection of information, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection of information, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, ESA, U. S. Department of Labor, Room S3502, 200 Constitution Avenue, N. W., Washington, D. C. 20210.

Date \_\_\_\_\_

I, \_\_\_\_\_ (Name of Signatory Party) \_\_\_\_\_ (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by \_\_\_\_\_ (Contractor or Subcontractor) \_\_\_\_\_ on the \_\_\_\_\_ (Building or Work) \_\_\_\_\_; that during the payroll period commencing on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, and ending the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said \_\_\_\_\_ (Contractor or Subcontractor) \_\_\_\_\_ from the full \_\_\_\_\_

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:  
(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ — in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ — Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in Section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.	

## **SECTION 01330 – SUBMITTAL PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. This Section includes submittal procedures for the following:
  - 1. Action Submittals.
  - 2. Informational Submittals.

#### **1.2 DEFINITIONS**

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

#### **1.3 SUBMITTAL PROCEDURES**

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 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 parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
  - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
  - 2. If intermediate submittal is necessary, process it in same manner as initial submittal.
  - 3. Allow 15 days for processing each re-submittal.
  - 4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- C. Identification: Place a permanent label or title block on each submittal for identification.
  - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.

3. Include the following information on label for processing and recording action taken:
  - a. Project name.
  - b. Date.
  - c. Name and address of Engineer.
  - d. Name and address of Contractor.
  - e. Name and address of subcontractor.
  - f. Name and address of supplier.
  - g. Name of manufacturer.
  - h. Unique identifier, including revision number.
  - i. Number and title of appropriate Specification Section.
  - j. Drawing number and detail references, as appropriate.
  - k. Other necessary identification.
- D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. Provide written explanation and justification for any proposed deviations.
- E. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
  1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.
  1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
  2. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Submittal and transmittal distribution record.
    - i. Remarks.
    - j. Signature of transmitter.
- G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- H. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

## **PART 2 - PRODUCTS**

### **2.1 ACTION SUBMITTALS**

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  - 1. Number of Copies: Submit four copies of each submittal, unless otherwise indicated. Engineer will return two copies. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each submittal to show which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Wiring diagrams showing factory-installed wiring.
    - f. Printed performance curves.
    - g. Operational range diagrams.
    - h. Compliance with recognized trade association standards.
    - i. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  - 1. Preparation: Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shop work manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Compliance with specified standards.
    - j. Notation of coordination requirements.
    - k. Notation of dimensions established by field measurement.
  - 2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  - 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- D. Application for Payment: Comply with requirements in Division 1 Section 01200 "Contract Payment and Modification Procedures".
- E. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.

## **2.2 INFORMATIONAL SUBMITTALS**

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- I. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- J. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.
- M. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- N. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- O. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections.



- P. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

### **PART 3 - EXECUTION**

#### **3.1 CONTRACTOR'S REVIEW**

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### **3.2 ENGINEER'S ACTION**

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. Approved - acceptable for use and part of the Contract Documents.
  2. Approved as Corrected - acceptable for use and part of the Contract Documents pending acceptance of minor changes and clarification made by the Engineer.
  3. Revise and Resubmit - make changes as directed by the Engineer and re-submit.
  4. Not Approved - not acceptable, re-submit new with product or layout.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**END OF SECTION 01330**

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## **SECTION 01500 – TEMPORARY FACILITIES**

### **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 requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities. Requirements for temporary siltation and erosion control are provided in Section 01510 "Temporary Pollution and Erosion Control".
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Electric power service.
  - 2. Water service.
  - 3. Sanitary Sewer Service.
- C. Support facilities include, but are not limited to, the following:
  - 1. Project identification and temporary signs.
  - 2. Storage and fabrication sheds.
  - 3. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Environmental protection.
  - 2. Storm water control.
  - 3. Site enclosure fence.
  - 4. Security enclosure and lockup.
  - 5. Barricades, warning signs, and lights.
- E. Referenced Sections include the following:
  - 1. Division 01 Section 01510 "Temporary Pollution and Erosion Control"

#### **1.3 USE CHARGES**

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Engineer and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
  - 1. Owner's construction forces.
  - 2. Occupants of Project.
  - 3. Engineer.
  - 4. Testing agencies.
  - 5. Personnel of authorities having jurisdiction.

#### **1.4 QUALITY ASSURANCE**

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities", and NFPA 241.
  - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

#### **1.5 PROJECT CONDITIONS**

- A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.
  - 1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities clean and neat.
  - 2. Relocate temporary services and facilities as required by progress of the Work.

#### **1.6 PROJECT IDENTIFICATION AND TEMPORARY SIGNS**

- A. The following are minimum requirements that must be posted in a visible location on the job site at all times throughout the duration of the project:
  - 1. Contractor Information:
    - a. Name.
    - b. Emergency Phone Numbers.
    - c. Supervisory Phone Numbers.
  - 2. Current Wage Rates.
  - 3. Company EEO Policy.
  - 4. Insurance Coverage Statement.
  - 5. Worker's Comp Notice (MODES B-2).
  - 6. Notice to Employees (WH 1321).
  - 7. Wage Rate Information FHWA-1495.
    - a. FHWA-1495A (only if Spanish speaking workers are employed).
  - 8. Discrimination in Employment.
  - 9. Notice: Federal Aid Projects (PR-1022).
  - 10. 5 in One:
    - a. EEO is the Law.
    - b. Minimum Wage Rate (WH 1088).
    - c. Notice Employee Polygraph (WH 1462).
    - d. Job Safety & Health Protection (2203).
    - e. Family and Medical Leave.
- B. Contractor shall be responsible for posting any additional signs as required by the owner or funding agency.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. All materials used for temporary facilities shall:
  - 1. Be adequate to serve their intended use.
  - 2. Meet all standards set by local, state, and federal codes and agencies having jurisdiction.
  - 3. Be subject to the approval of the Owner and the Engineer if intended to remain and be turned over to the Owner upon completion of the project.

**2.2 EQUIPMENT**

- A. General: Provide equipment suitable for use intended.
- B. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- C. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- D. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

**PART 3 - EXECUTION****3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve 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 appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

- C. Sanitary Facilities: Provide temporary toilets. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
- D. 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 disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
  - 1. Install power distribution wiring overhead and rise vertically where least exposed to damage.
  - 2. Connect temporary service to Owner's existing power source, as directed by electric company officials.
- E. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
- F. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
  - 1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
  - 2. Provide warning signs at power outlets other than 110 to 120 V.
  - 3. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.
  - 4. Provide metal conduit enclosures or boxes for wiring devices.

### **3.3 SUPPORT FACILITIES INSTALLATION**

- A. Traffic Controls: Provide temporary traffic controls when work performed interferes with adjacent traffic patterns. Provide adequate warning sign and flag men as required.
- B. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

### **3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using 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 Project site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

- E. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
  - 1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch- (16-mm-) thick exterior plywood.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been 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 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 property of Contractor.
  - 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. 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 temporary entrances, as required by authorities having jurisdiction.
  - 3. At Substantial Completion, clean and renovate permanent facilities used during construction period.

## END OF SECTION 01500

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## **SECTION 01732 – SELECTIVE DEMOLITION**

### **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 the following:
  - 1. Demolition and removal of selected site elements.
  - 2. Repair procedures for selective demolition operations.

#### **1.3 DEFINITIONS**

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### **1.4 MATERIALS OWNERSHIP**

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
  - 1. Coordinate with Owner to establish special procedures for removal and salvage.

#### **1.5 SUBMITTALS**

- A. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's and other tenants' on-site operations are uninterrupted.
  - 2. Interruption of utility services.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.

5. Locations of temporary partitions and means of egress, including for other tenants affected by selective demolition operations.
6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

## **1.6 QUALITY ASSURANCE**

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.

## **1.7 PROJECT CONDITIONS**

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
  1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
  1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  2. Before selective demolition, Owner will remove the following items:
    - a. <<insert>>
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Hazardous Materials: Hazardous materials are present in building to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- F. Storage or sale of removed items or materials on-site will not be permitted.
- G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Maintain fire-protection facilities in service during selective demolition operations.

**PART 2 - PRODUCTS****2.1 REPAIR MATERIALS**

- A. Use repair materials identical to existing materials.
  - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

**3.2 UTILITY SERVICES**

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
  - 1. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### **3.3 PREPARATION**

- A. **Site Access and Temporary Controls:** Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
  - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
  - 3. Protect existing site improvements, appurtenances, and landscaping to remain.
  - 4. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
- B. **Temporary Facilities:** Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- C. **Temporary Enclosures:** Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- D. **Temporary Partitions:** Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- E. **Temporary Shoring:** Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

### **3.4 POLLUTION CONTROLS**

- A. **Dust Control:** Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
  - 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

### **3.5 SELECTIVE DEMOLITION**

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, according to submitted schedule of demolition activities.
  - 2. Dispose of demolished items and materials promptly.
  - 3. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with building owner's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
  - 1. Clean salvaged items.
  - 2. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
  - 1. Clean and repair items to functional condition adequate for intended reuse.
  - 2. Protect items from damage during transport and storage.
  - 3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.
- F. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.
- G. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- H. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

**3.6 PATCHING AND REPAIRS**

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
  - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- C. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

**3.7 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

**3.8 SELECTIVE DEMOLITION SCHEDULE**

- A. Existing Construction to Be Removed:
  - 1. **None.**
- B. Existing Items to Be Removed and Salvaged:
  - 1. **None.**
- C. Existing Items to Be Removed and Reinstalled:
  - 1. **None.**
- D. Existing Items to Remain:
  - 1. **None.**

**END OF SECTION 01732**

## **SECTION 02230 – SITE CLEARING**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes the following:
- B. Protecting existing trees and vegetation to remain.
- C. Removing trees and other vegetation.
- D. Clearing and grubbing.
- E. Topsoil stripping.

#### **1.2 REFERENCED SECTIONS INCLUDE THE FOLLOWING:**

- A. Section 01510 "Temporary Pollution, Siltation and Runoff Control".

#### **1.3 REFERENCED STANDARDS INCLUDE THE FOLLOWING:**

- A. No Standards referenced in this Section.

#### **1.4 DEFINITIONS**

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and other deleterious materials.

#### **1.5 MATERIALS OWNERSHIP**

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

#### **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, walks, 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 authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing indicated removal and alteration work on property adjoining Owner's property will be obtained by Owner before award of Contract.
- C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- D. Notify utility locator service for area where Project is located before site clearing.

**PART 2 - PRODUCTS (NOT APPLICABLE)****PART 3 - EXECUTION****3.1 PREPARATION**

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Locate and clearly flag trees and vegetation to remain or to be relocated.
- D. Protect existing site improvements to remain from damage during construction.
  - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

**3.2 TREE PROTECTION**

- A. Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.
  - 1. Do not store construction materials, debris, or excavated material within drip line of remaining trees.
  - 2. Do not permit vehicles, equipment, or foot traffic within drip line of remaining trees.
- B. Do not excavate within drip line of trees, unless otherwise indicated.
- C. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
  - 1. Cover exposed roots with burlap and water regularly.
  - 2. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
  - 3. Coat cut faces of roots more than 1-1/2 inches in diameter with emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
  - 4. Cover exposed roots with wet burlap to prevent roots from drying out. Backfill with soil as soon as possible.
- D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Engineer.
  - 1. Employ a qualified arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
  - 2. Replace trees that cannot be repaired and restored to full-growth status, as determined by the qualified arborist.



**3.3 CLEARING AND GRUBBING**

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
  - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  - 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
  - 3. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
  - 4. Use only hand methods for grubbing within drip line of remaining trees.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
  - 1. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

**3.4 TOPSOIL STRIPPING**

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Limit height of topsoil stockpiles to 72 inches.
  - 2. Do not stockpile topsoil within drip line of remaining trees.
  - 3. Stockpile surplus topsoil and allow for resspreading deeper topsoil.

**3.5 DISPOSAL**

- A. Disposal: 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.

**END OF SECTION 02230**

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## SECTION 02300 - EARTHWORK

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. This Section includes the following:

1. Rough grading of site according to site grading plan in project plans.
2. Preparing subgrade for slabs-on-grade, walks, pavements, lawns, and plantings.
3. Excavating and backfilling for buildings and structures.
4. Drainage course for slabs-on-grade.
5. Subbase course for concrete walks and pavements.
6. Base course for asphalt paving.
7. Subsurface drainage backfill for walls and trenches.
8. Construction of embankments, levees and slopes.
9. Finish grading for areas as designated on plans.

B. Related Sections include the following:

1. Section 01510 "Temporary Pollution, Siltation and Runoff Control".
2. Section 02230 "Site Clearing".

C. Referenced Standards include the following:

1. SAE J1179 - Hydraulic Excavator and Backhoe Digging Forces; Society of Automotive Engineers; Current Publication.
2. SAE J732 - Specification Definitions-Loaders; Society of Automotive Engineers; Current Publication.
3. ASTM D1586 - Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils; American Society for Testing and Materials; Current Publication.
4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System); American Society for Testing and Materials; Current Publication.
5. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)); American Society for Testing and Materials; Current Publication.
6. NFPA 495 - Explosive Materials Code; National Fire Protection Association; Current Publication.
7. ASTM E329 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction; American Society for Testing and Materials; Current Publication.
8. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; American Society for Testing and Materials; Current Publication.
9. ASTM E548 - Standard Guide for General Criteria Used for Evaluating Laboratory Competence; American Society for Testing and Materials; Current Publication.
10. Missouri Highways and Transportation Commission, Missouri Standard Specifications for Highway Construction, Current Publication.
11. ASTM D4759 - Standard Practice for Determining the Specification Conformance of Geosynthetics; American Society for Testing and Materials; Current Publication.
12. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; American Society for Testing and Materials; Current Publication).

13. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; American Society for Testing and Materials; Current Publication
14. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products; American Society for Testing and Materials; Current Publication.
15. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity; American Society for Testing and Materials; Current Publication.
16. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile; American Society for Testing and Materials; Current Publication.
17. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; American Society for Testing and Materials; Current Publication.
18. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; American Society for Testing and Materials; Current Publication.
19. ASTM D2487 - Classification of Soils for Engineering Purposes.
20. ASTM D6938 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); American Society for Testing and Materials; Current Publication.
21. ASTM D2937 - Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method; American Society for Testing and Materials; Current Publication.

## 1.2 UNIT PRICES

### A. Excavating Soil Material:

1. Measurement method: by cubic yard in place.
2. Includes: Excavating to required elevations, loading and placing materials in stockpiles.
3. Does not include: Over-Excavating, payment will not be made for over-excavated work nor for replacement materials.

### B. General Fill:

1. Applies to unit price for compacted fill.
2. Measurement method: by cubic yard in place.
3. Includes: Excavating existing soil or acquiring satisfactory soil from off site, stockpiling, scarifying substrate surface, placing where required, and compacting.

### C. Granular Fill:

1. Applies to unit price for granular fill.
2. Measurement method: by cubic yard in place.
3. Includes: Obtaining material and hauling to site, stockpiling, scarifying substrate surface, placing where required, and compacting.

### D. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following:

1. 24 inches outside of concrete forms other than at footings.
2. 12 inches outside of concrete forms at footings.
3. 6 inches outside of minimum required dimensions of concrete cast against grade.
4. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
5. 6 inches beneath bottom of concrete slabs on grade.

- E. Unit prices for rock excavation include replacement with approved materials.

### **1.3 DEFINITIONS**

- A. Backfill: Soil materials used to fill an excavation.
- B. Base Course: Layer placed between the subbase course or subgrade and asphalt or concrete pavement.
- C. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- D. Cut: Soil materials removed from its existing location on-site to lower existing grades to plan grades.
- E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations.
  - 1. Additional Excavation: Excavation below subgrade elevations as directed by Engineer. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
  - 2. Bulk Excavation: Excavations more than 10 feet in width and pits more than 30 feet in either length or width.
  - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Embankment Fill: Fill placed within a dam or levee embankment footprint.
- I. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 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 42-inch- wide, short-tip-radius rock bucket; rated at not less than 120-hp flywheel power with bucket-curling force of not less than 25,000 lbf and stick-crowd force of not less than 18,700 lbf; measured according to SAE J-1179.
  - 2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 210-hp flywheel power and developing a minimum of 45,000-lbf breakout force; measured according to SAE J-732.
- 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: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.
- L. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

**1.4 SUBMITTALS**

- A. Material Test Reports: Reports shall be submitted from a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
  - 1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
  - 2. Laboratory compaction curve according to ASTM D 698 for each on-site or borrow soil material proposed for fill and backfill, one for each 10,000 cubic yards of soil material placed.
- B. Material specifications and samples of proposed geotextiles, if geotextiles are required.
- C. Material specifications and samples of proposed additives, if required.
- D. Blasting plan approved by authorities having jurisdiction, for record purposes, if rock excavation by blasting is required.
- E. Seismic survey agency report, for record purposes, if rock excavation by blasting is required.

**1.5 QUALITY ASSURANCE**

- A. Comply with applicable requirements of NFPA 495, "Explosive Materials Code."
- B. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.
- C. Seismic Survey Agency: An independent testing agency, acceptable to authorities having jurisdiction, experienced in seismic surveys and blasting procedures to perform the following services:
  - 1. Report types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.
  - 2. Seismographic monitoring services during blasting operations.

**1.6 PROJECT CONDITIONS**

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Engineer's written permission.
  - 3. Contact utility-locator service for area where Project is located before excavating.

**PART 2 - PRODUCTS****2.1 SOIL MATERIALS**

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GM, GC, CL, SC, SW, and SM, or a combination of these group symbols as limited by project geotechnical reports or as limited elsewhere in these specifications; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

- C. Unsatisfactory Soils: ASTM D 2487 soil classification groups ML, MH, CH, OL, OH, and PT, or a combination of these group symbols or as specifically described elsewhere in these specifications, unless expressly allowed by these specifications.
  - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
  - 2. Unsatisfactory soils also include satisfactory soils that are specifically excluded elsewhere in these specifications.
- D. Fill and Backfill:
  - 1. Use satisfactory soil materials for un-improved areas such as lawns and landscaped areas.
  - 2. Use Type 1 Aggregate Base Course as specified in the Missouri Department of Transportation Standard Specifications for improved areas such as pavements and sidewalks.
- E. Structural Fill and Backfill: Satisfactory soil materials, conforming to the following requirements: limited to soil classification groups GW, GP, GM, SW, SP and SM; crushed stone or natural and crushed sand and gravel.
- F. Dam and Levee Embankment Fill: Satisfactory soil materials, conforming to the following requirements: limited to CL, CH, or SC only; with liquid limit not to exceed 60.
- G. Subbase: Type 1 Aggregate Base Course as specified in the Missouri Department of Transportation Standard Specifications.
- H. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and 0 to 5 percent passing a No. 8 sieve.

## 2.2 ACCESSORIES

- A. Filter Fabric: 6 oz. non-woven geotextile inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids. Material shall have a puncture strength greater than 95-psi as determined by ASTM D 4833.
- B. Separation Fabric: Woven geotextile, specifically manufactured for use as a separation geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
  - 1. Grab Tensile Strength: 200 lbf; ASTM D 4632.
  - 2. Tear Strength: 75 lbf; ASTM D 4533.
  - 3. Puncture Resistance: 90 lbf; ASTM D 4833.
  - 4. Water Flow Rate: 4 gpm per sq. ft.; ASTM D 4491.
  - 5. Apparent Opening Size: No. 30; ASTM D 4751.

**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 earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

**3.2 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.
  - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

**3.3 EXPLOSIVES**

- A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site.
  - 1. Do not damage adjacent structures, property, or site improvements or weaken the bearing capacity of rock subgrade when using explosives.

**3.4 EXCAVATION, GENERAL**

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

**3.5 EXCAVATION FOR STRUCTURES**

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
  - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
  - 2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.



**3.6 EXCAVATION FOR WALKS AND PAVEMENTS**

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

**3.7 APPROVAL OF SUBGRADE**

- A. Notify Engineer when excavations have reached required subgrade.
- B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
  - 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

**3.8 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 may be used when approved by Engineer.
  - 1. Fill unauthorized excavations under other construction or utility pipe as directed by Engineer.

**3.9 STORAGE OF SOIL MATERIALS**

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile 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.

**3.10 BACKFILL**

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
  - 2. Surveying locations of underground utilities for record documents.
  - 3. Inspecting and testing 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.

**3.11 FILL**

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. 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, steps and ramps, building slabs, and footings and foundations, Type 1 aggregate base course as specified in the Missouri Department of Transportation Standard Specifications.

**3.12 MOISTURE CONTROL**

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill 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.

**3.13 COMPACTION OF BACKFILLS AND FILLS**

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
  - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
  - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
  - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.

**3.14 GRADING**

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
  - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
  - 2. Walks: Plus or minus 1 inch.
  - 3. Pavements: Plus or minus ½ inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of ½ inch when tested with a 10-foot straightedge.

### 3.15 SUBBASE, BASE COURSE, AND SHOULDERS

- A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
  - 1. Place base course material over subbase.
  - 2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
  - 3. Shape subbase and base to required crown elevations and cross-slope grades.
  - 4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
  - 5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.
- B. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

### 3.16 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work complies with requirements.
- C. 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.
- D. Testing agency will perform the required tests and shall provide test reports to the Project Engineer within 24 hours of the completion of the tests. A Professional Engineer shall certify all test reports. Tests will be performed at a minimum of the following locations and frequencies:
  - 1. Two initial gradation tests for each type of embedment or backfill material and one additional gradation test for each additional 500 tons of each material.
  - 2. Two Standard Proctor compaction tests (ASTM D-698) for each type of material.
  - 3. In place field density tests according to ASTM D 2922:
    - a. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
    - b. Trench Backfill: At the first 50 lineal feet of embedment material placed. This testing is to provide a demonstration of the compactive effort required to achieve the specified density. Certified tests shall be conducted once a week and/or once every 500 feet of trench.
- E. The Engineer shall have the authority to order additional certification tests at any time if he feels the compactive effort is not being duplicated, or materials are not meeting these specifications.

- F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

### **3.17 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 recompact.
- 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 the greatest extent possible.

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

- A. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.
  - 1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

**END OF SECTION 02300**

**SECTION 02310 – EXCAVATING & BACKFILLING TRENCHES****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Trenching for piped and buried utilities.
  - 2. Backfilling of trenches.
- B. Related Sections include the following:
  - 1. Section 01510 "Temporary Pollution & Erosion Control".
  - 2. Section 02230 "Site Clearing".
- C. Referenced Standards include the following:
  - 1. ASTM D 422 - Standard Test Methods for Particle-Size Analysis of Soils; 2002.
  - 2. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)); American Society for Testing and Materials; 2000a.
  - 3. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; American Society for Testing and Materials; 2000.
  - 4. ASTM D 1586 - Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils; American Society for Testing and Materials; 1999.
  - 5. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; American Society for Testing and Materials; 1994.
  - 6. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe of Sewers and Other Gravity-Flow Applications; 2000.
  - 7. ASTM D 2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System); American Society for Testing and Materials; 2000.
  - 8. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); American Society for Testing and Materials; 2001.
  - 9. ASTM D 2937 - Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method; American Society for Testing and Materials; 2000.
  - 10. ASTM D 3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; American Society for Testing and Materials; 2001.
  - 11. ASTM E 329 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction; American Society for Testing and Materials; 2000b.
  - 12. ASTM E 548 - Standard Guide for General Criteria Used for Evaluating Laboratory Competence; American Society for Testing and Materials; 1994e1.
  - 13. NFPA 495 - Explosive Materials Code; National Fire Protection Association; 2001.
  - 14. Missouri Standard Specifications for Highway Construction, 1999

**1.2 UNIT PRICES****A. Embedment Material:**

1. Measurement method: linear foot of pipe or utility material installed.
2. Unit prices for embedment materials shall be included in unit price for pipe materials.

**B. Backfill Material:**

1. Measurement method: linear foot of pipe or utility material installed.
2. Unit prices for backfill materials shall be included in unit price for pipe materials.

**C. Rock Excavation:**

1. Measurement method: cubic yard of rock, measured in original position, but not to exceed a depth of 6 inches beneath the bottom of the pipe and a width equal to the nominal pipe diameter plus 24 inches.
2. Unit prices, where applicable, for rock excavation include the cost of replacement with approved materials. Refer to paragraph 3.4.A.

**1.3 DEFINITIONS**

**A. Bedding:** Material placed from the excavated subgrade material to the flow line of the pipe.

**B. Haunching:** Material placed from the flow line of the pipe to the spring line of the pipe.

**C. Embedment:** Includes bedding, haunching, and initial backfill.

**D. Backfill:** Material used to fill the excavation of a trench.

1. **Initial Backfill:** Material placed from the spring line of the pipe to a minimum of 12 inches above the top of the pipe or as shown on the Plans.
2. **Final Backfill:** Material placed from the top of initial backfill to the top of the trench or to the bottom of an improved surface.

**E. Borrow:** Satisfactory soil imported from off-site for use as fill or backfill.

**F. Improved Surface:** Any existing or proposed surface including roads, parking lots, curbs, slabs, sidewalks or other manmade surface courses designated to receive vehicular or pedestrian traffic or other loading; does not include lawns or landscaped areas, which are not designed or designated to receive traffic loading.

**G. NPS:** Nominal Pipe Size.

**H. Spring Line:** The elevation equal to the horizontal centerline of a pipe.

**I. Subgrade:** 1. Surface or elevation at the bottom of an excavation. 2. The top surface of backfill immediately below pavement base, subbase, drainage fill, or topsoil materials.

**J. Rock:** Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cu. yd. for bulk excavation or 3/4 cu. yd. for trench and pit excavation that cannot be removed by excavating equipment without systematic drilling, ram hammering, ripping, sawing or blasting, when permitted.

**1.4 SUBMITTALS**

- A. Material Test Reports: Submit from a qualified testing agency indicating and interpreting test results for compliance with Section 3.18 and the following:
  - 1. Soil Classifications.
  - 2. Gradation Tests.
  - 3. Moisture-Density Relations (Proctor).
  - 4. In-Place Field Density Tests.
- B. Flowable Backfill Mix Design: Include mix proportions by weight and laboratory trial mix results or field test data.
  - 1. Indicate amounts of mix water to be withheld for later addition at Project site.

**1.5 QUALITY ASSURANCE**

- A. Comply with applicable requirements of NFPA 495, "Explosive Materials Code" or local requirements, whichever is more restrictive.
- B. Seismic Survey Agency: An independent testing agency, acceptable to authorities having jurisdiction, experienced in seismic surveys and blasting procedures shall perform the following services:
  - 1. Report types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent or nearby properties.
  - 2. Seismographic monitoring services during blasting operations.
- C. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, according to ASTM D 3740 and ASTM E 548.

**1.6 PROJECT CONDITIONS**

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without 24 hours notice to property owner and Engineer's permission.
  - 3. Contact utility-locator service for area where Project is located before excavating.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. General: Provide borrow materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Shall be free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, organic materials, and other deleterious matter and as specified below:
1. Embedment: ASTM D 2487 soil classification groups GW, GP, SW, SP and with fines content (% passing No. 200 sieve) not to exceed 5%.
  2. Final Backfill: ASTM D 2487 soil classification groups CL, ML-CL, GC, SC, ML, MH, GW, GP, GM, SM, SP and SM, a combination of these group symbols, as limited elsewhere in these specifications.
- C. Unsatisfactory Soils:
1. Embedment: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
  2. Final Backfill: ASTM D 2487 soil classification groups CH, OL, OH, and PT.
  3. Unsatisfactory soils include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Granular Embedment Material: Embedment material shall conform to Class IA, IB, or II as specified in ASTM D 2321 and as follows:

1. Class IA materials shall conform to the following gradation requirements:

Sieve	% Passing
1 ½"	100
¾"	65-100
1/2"	47-77
3/8"	33-57
#4	0-10
#200	0-5

- a. Pre-approved Class IA materials include the following:

- 1) No pre-approved materials

2. Class IB materials shall conform to the following gradation requirements:

Sieve	% Passing
1 ½"	100
¾"	65-100
1/2"	47-80
3/8"	33-71
#4	0-50
#200	0-5

- a. Pre-approved Class IB materials include the following

- 1) Grade 5 Aggregate for Drainage, as specified in Missouri Standard Specifications for Highway Construction (1999) Section 1009.



3. Class II materials shall conform to the following gradation requirements:

Sieve	% Passing
1 ½"	100
¾"	65-100
1/2"	47-100
3/8"	33-100
#4	0-100
#200	0-5

- a. Pre-approved Class II materials include the following:
- 1) Type 4 Aggregate for Base, as specified in Missouri Standard Specifications for Highway Construction (1999) Section 1007.
  - 2) Type 1 Aggregate for Base and Type 5 Aggregate for Base, as specified in Missouri Standard Specifications for Highway Construction (1999) Section 1007, may be used PROVIDED that the production of the product is controlled to provide a Maximum of 5% by weight of material passing a No. 200 sieve.
4. Use of a material not pre-approved may be acceptable only after obtaining written approval from the Engineer prior to use. The following is the minimum required information to be submitted to the Engineer for approval:
- a. Name, address and phone number of Supplier
  - b. Name of material (include respective ASTM class designation)
  - c. Grain Size Analysis Tests, according to ASTM C 136.
  - d. Representative samples of the material(s) (1 cubic foot minimum)

## 2.2 CONCRETE

- A. Concrete: ASTM C 94, and the following:
1. Cement: ASTM C 150, Type I/II,
  2. Fine Aggregate: ASTM C33, sand.
  3. Coarse Aggregate: ASTM C33, #57 or 67
  4. Water: Potable.
  5. Air entrainment: ASTM C260.
- B. Flowable Backfill Portland Cement Mix Design: 40-psi minimum and 80 psi maximum compressive strength.
1. Air entrainment admixtures may be used as approved by the Engineer.
- C. Concrete Fill or Encasement Portland Cement Mix Design: 3000-psi minimum compressive strength.
1. Air entrainment admixtures may be used as approved by the Engineer.

## 2.3 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Potable Water systems.
5. Green: Sanitary Sewer systems.

B. Locator Wire: No. 12 vinyl-coated copper wire placed on top of pipe and inserted into valve boxes.

## 2.4 STEEL CASING

A. Steel casing shall be new welded steel pipe with minimum yield strength of 35,000 psi. The minimum wall thickness of steel casing shall be as shown on the following table:

Carrier Pipe Nominal I.D. (in)	Minimum Casing I.D. (in)	Steel Casing Pipe Wall Thickness (in)	
		Highway and Field Borings	Railroad Borings
8	Maximum O.D. of Carrier Pipe plus 6 inches	0.250	0.312
10		0.281	0.375
12		0.281	0.375
15		0.312	0.348
18		0.344	0.563
21		0.344	0.563
24		0.375	0.625
27		0.438	0.625
36		0.438	0.719
48		0.500	0.750

## PART 3 - 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 earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

**3.2 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.
  - 2. Install a dewatering system to lower and maintain water level below pipe flowline and to convey ground water away from excavation work areas. Maintain until dewatering is no longer required.

**3.3 EXPLOSIVES**

- A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site.
  - 1. Do not damage adjacent structures, property, or site improvements or weaken the bearing capacity of rock subgrade when using explosives.

**3.4 EXCAVATION FOR UTILITY TRENCHES**

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions shall be unclassified excavation.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil or granular materials.
- B. The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. Four hundred (400) feet shall be the maximum length of open trench on any line under construction.
- C. Excavate trenches to indicated grades, alignments, depths, and elevations.
  - 1. Minimum depth of trench excavation shall be such that there is three feet of fill above the top of pipe.
- D. Use of mechanical equipment will not be permitted in locations where its operation would cause damage to trees, buildings, culverts or other existing property, utilities or structures above or below ground. In all such locations, hand excavation methods shall be used.

**3.5 UNAUTHORIZED EXCAVATION**

- A. Fill unauthorized excavations under other construction or utility pipe as directed by Engineer.

**3.6 STORAGE OF SOIL MATERIALS**

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile 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 TRENCH WIDTH

- A. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit.
- B. Excavate trench walls vertically from trench bottom to 6 inches higher than top of pipe or conduit, unless otherwise indicated.
- C. The minimum trench width shall be as follows where trench walls are stable:
  - 1. NPS up to 24 inches: outside diameter of pipe plus 16 inches, but not less than 18 inches.
  - 2. NPS greater than 24 inches: outside diameter of pipe plus 24 inches.
  - 3. Where trench walls must be supported, increase the trench width sufficiently to allow the same amount of clearance as required above.
- D. Where unstable native soil conditions exist, the minimum trench width shall be as follows:
  - 1. NPS up to 10 inches: three times the pipe diameter.
  - 2. NPS greater than 10 inches: three times the pipe diameter, or the pipe diameter plus four feet, whichever is greater.

### 3.8 FOUNDATIONS

- A. If Engineer determines that unsatisfactory soil is present and that foundations are required, continue excavation and replace with timber, concrete or other material as directed by the Engineer. Additional excavation and replacement material such as timber, concrete, or other foundation will be paid for according to Contract provisions for changes in the Work.

### 3.9 GROUNDWATER BARRIERS

- A. Where native soils consist of low permeable soils such as clays or bedrock, construct groundwater barriers to minimize the flow of groundwater through the finished trench. Native soils consisting of high permeable soils such as sands may not require groundwater barriers if approved in writing from the Engineer.
- B. Groundwater barriers shall be constructed as follows:
  - 1. Materials: Groundwater Barrier Materials meet soil classification GC, SC, CL, OR ML-CL. Material may be finely divided suitable job excavated material, free from stones, organic matter and debris.
  - 2. Frequency: Construct Groundwater Barriers at a minimum of 1,000-foot intervals. Where 1,000-foot interval falls within an improved surface, construct groundwater barrier to less than the 1,000-foot interval outside of the improved surface.
  - 3. Depth: Groundwater barriers shall be compacted the full depth of granular embedment material from the subgrade or foundation to an elevation one foot above the top of the granular embedment material, but not less than four (4) feet.
  - 4. Width: shall extend the full width of the trench.
  - 5. Thickness: shall be a minimum of four (4) feet thick measured along the length of the pipe.

### **3.10 TRENCH BOTTOMS AND BEDDING**

- A. Pressure piping: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
  - 1. For pipes and conduit less than 6 inches in nominal diameter hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
  - 2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
  - 3. Where rock or other unyielding bearing material exists at the trench bottom, over excavate a depth equal to one forth the outside pipe diameter but not less than 6 inches deeper than elevation required to allow for bedding course. Place and compact bedding material on trench bottom and where indicated. Shape bedding material to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
    - a. Bedding Material: Granular Embedment Material.
- B. Gravity piping: Excavate trench bottom to a depth equal to one forth the outside pipe diameter, but not less than 6 inches below the required flow line elevation to allow for bedding. Place and compact bedding on trench bottom. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
  - 1. Bedding Material: Granular Embedment Material.
  - 2. If compaction of the bedding material can not be obtained due to natural unyielding or poor subgrade material, a foundation course may be required. Cease work and notify Engineer immediately to inspect the subgrade and recommend further action.

### **3.11 HAUNCHING**

- A. Carefully compact, as required, haunching material under pipe, bring up evenly on both sides of the pipe and along the full length of pipe to the spring line of the pipe to avoid damage or displacement of piping.
- B. Pressure piping: use the following materials:
  - 1. When bedding is not required; compacted satisfactory soil embedment material.
  - 2. When bedding is required; Granular Embedment Material, compacted as required.
- C. Gravity piping haunching material shall be as follows:
  - 1. Granular Embedment Material, compacted as required.

**3.12 BACKFILL GENERAL**

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Survey placed or constructed underground utilities as required for record documents.
  - 2. Remove trash and debris.
  - 3. Remove temporary shoring and bracing, and sheeting.
  - 4. Where compacted backfill is required, place the material in horizontal layers less than eight (8) inches in depth of loose measure.
  - 5. Moisture content shall be such that the required degree of compaction can be obtained.
  - 6. Compact each layer by hand, machine tampers, or by other suitable equipment to the required compaction.
- B. Fill voids with approved initial backfill materials while shoring and bracing, and as sheeting is removed.
- C. Install warning tape directly above utilities as specified elsewhere in these specifications, 12 inches below finished grade and 6 inches below improved surfaces.

**3.13 INITIAL BACKFILL**

- A. Initial backfill shall be carefully placed and compacted as required to 12 inches above the top of the pipe to prevent damage to the pipe.
- B. Unimproved surfaces: Use the following materials for initial backfill under unimproved surfaces:
  - 1. Pressure piping: Satisfactory Soil Embedment Material, compacted as required.
  - 2. Gravity piping: Granular Embedment Material, compacted as required.
- C. Improved surfaces: Use the one of the following materials for initial backfill under improved surfaces:
  - 1. Granular Embedment Material, compacted as required.
  - 2. Flowable backfill.

**3.14 FINAL BACKFILL**

- A. Unimproved surfaces: Use satisfactory soil backfill.
- B. Improved surfaces: Use the one of the following materials for initial backfill under improved surfaces:
  - 1. Granular embedment material, compacted.
  - 2. Flowable backfill.

**3.15 COMPACTION REQUIREMENTS**

- A. Bedding and Haunching: Compact embedment materials for bedding and haunching to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
1. Satisfactory soil embedment material: 90%.
  2. Granular embedment material: 90%.
- B. Backfill under unimproved surfaces: Compact embedment and backfill materials for initial and final backfill to be placed under unimproved surfaces to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
1. Initial backfill:
    - a. Satisfactory soil embedment material: 85%.
    - b. Granular embedment material: 85%.
    - c. Compaction of initial backfill under unimproved surfaces may be waived by the Engineer for part or the entire project. Compaction shall be required unless written approval has been obtained from the Engineer.
  2. Final backfill: adequate compactive effort shall be applied to satisfactory soil material to ensure no substantial settlement of the final backfill.
- C. Backfill under improved surfaces: Compact embedment and backfill materials for initial and final backfill to be placed under improved or proposed improved surfaces to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
1. Granular Embedment Material: 95%.
- D. Groundwater Barriers: Compact groundwater barrier materials under unimproved surfaces to not less than the following Percentages of maximum dry unit weight according to ASTM D 698:
1. Groundwater Barrier Material: 90%.
- E. Class IA Granular Embedment Material shall not require compaction.
- F. Waiving of Compaction Testing Requirements: Class IB Granular Embedment Material compaction testing may be waived if gradation analyses reveals that the material is sufficiently open graded and that compactive efforts by either mechanical or hand compaction operations do not produce an effective increase in percent compaction. Materials proposed to be waived for compaction testing shall be approved by the Engineer prior to use on this project. The following materials have been pre-approved and do not require compaction testing:
1. No materials have been pre-approved.
- G. Initial Compaction Testing shall be performed on each compacted embedment and backfill material layer within the first fifty (50) linear feet of pipe installed. This testing procedure is to provide a demonstration of the compactive effort required to achieve the specified density. Repeat this testing for each new embedment or backfill material used throughout the project.
- H. Periodic Compaction Testing shall be provided a on each compacted embedment and backfill material a minimum of once per week and/or once every 3,000 feet of trench being excavated. The Engineer shall have the authority to order additional tests at anytime if he feels the compactive effort is not being properly duplicated, or to reduce the frequency of testing if the compactive effort has been adequately duplicated.

### **3.16 FLOWABLE BACKFILL**

- A. All required submittals shall be approved by the Engineer prior to use of Flowable backfill.
- B. Flowable backfill may be used in lieu of compacted granular embedment material for initial and final backfill under improved surfaces.
- C. Flowable Backfill shall not be placed in lifts greater than three (3) feet in depth. Additional layers shall not be placed until the flowable backfill has lost sufficient moisture to be walked on without indenting more than two inches. Any damage resulting from placing flowable backfill in layers that are too thick or from not allowing sufficient time between placement of layers shall be repaired at the Contractor's expense.
- D. Flowable backfill shall be sufficiently consolidated. Consolidation may be achieved by using vibration or other approved methods.
- E. Provisions shall be made to allow bleed water to drain from the excavation.

### **3.17 GRADING**

- A. General: Uniformly grade disturbed areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and trenches and to prevent ponding. Finish subgrades to match pre-existing elevations.

### **3.18 DIRECTIONAL BORING**

- A. Boring shall be by an approved bore method from ditch line to ditch line, or as shown on the plans or approved by Engineer.

### **3.19 FIELD QUALITY CONTROL**

- A. Testing Agency: The Contractor shall engage a qualified independent geotechnical engineering testing agency to perform field quality control testing.
- B. Allow testing agency to inspect and test subgrades and each backfill layer. Proceed with subsequent earthwork only after test results for previously completed work complies with requirements.
- C. Testing agency shall perform tests to ensure that embedment and backfill materials and their placement comply with specified requirements. The following tests shall be required and reported to Engineer:
  - 1. Soil Classification: One initial soil classification test, ASTM D 2487 for each type of satisfactory soil embedment or backfill material and one additional test for each 10,000 cubic yards placed of each material.
    - a. Initial Soil Classification test shall be reported to the Engineer and approved prior to use of material on project.
  - 2. Gradation Test: One initial gradation test, ASTM D 422 for each type of granular embedment or backfill material and one additional test for each 10,000 cubic yards placed of each material.
    - a. Initial gradation tests shall be reported to the Engineer and approved prior to use of material on project.



3. Moisture-Density Relations (Proctor): One standard proctor compaction test, ASTM D 698, for each type of material proposed, and one additional test for each 10,000 cubic yards placed of each material.
  4. In place field density tests of embedment and compacted backfill shall be made as specified elsewhere in this section and according to ASTM D 2922.
- D. Sample material tests such as soil classification, gradation and proctor tests shall be conducted no more than 15 days prior to submittal to the Engineer for approval. When material sample submittals are required, the testing agency shall obtain a sample of adequate size, split the sample by approved methods, perform testing on portions of the sample and return a portion of the sample to the Contractor for submittal to the Engineer.
- E. Material samples shall be clearly labeled and shall be submitted along with the written reports of testing conducted on that sample. Test reports conducted prior to the Work shall not be accepted unless the material is pre-approved and current certification is provided indicating that the material meets all requirements of the certifying agency.
- F. Testing Agency shall prepare and submit written reports at least once a week. Reports shall detail the material tested, the location test, the lift or elevation of material tested, the percent compaction and moisture content. Test results shall be submitted to the Contractor and Engineer.
- G. When testing agency reports that embedment and backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.
1. A written notice of failure to meet compaction shall be given to the Contractor and Engineer within 24 hours of said test. The report shall detail the location of work, type of material, and the tested percent compaction and moisture content.

### 3.20 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 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, re-compact, and seed & mulch.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, reconstruct surfacing, and seed & mulch.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

**3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property or to an offsite property as approved by Engineer and written authorization of property owner. Stockpile or spread soil on owners property as directed by Engineer.
1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

**END OF SECTION 02310**

**SECTION 02510 – WATER DISTRIBUTION PIPING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and Special Provisions apply to this Section.

**1.2 SUMMARY**

- A. This Section includes water-distribution piping and specialties outside the building for the following:
1. Water services
  2. Water mains
  3. Fire services
  4. Process Piping
- B. Referenced Sections include the following:
1. Section 02310 "Excavating and Backfilling Trenches".
- C. Referenced Standards include the following:
1. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 in. through 12 in. (100 mm through 300 mm), for Water Distribution; American Water Works Association; 1997.
  2. AWWA C110 - ANSI Standard for Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in. (76 mm through 1,219 mm), for Water; American Water Works Association; 1998.
  3. AWWA C151 - ANSI Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water; American Water Works Association; 2002.
  4. AWWA C153 - ANSI Standard for Ductile-Iron Compact Fittings for Water Service; American Water Works Association; 2000.
  5. AWWA C111 - ANSI Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; American Water Works Association; 2000.
  6. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service; American Water Works Association; 2001.
  7. AWWA C540-02 - Standard for Power-Actuating Devices for Valves and Slide Gates; American Water Works Association; 2003
  8. AWWA C550 - Protective Epoxy Interior Coatings for Valves and Hydrants; American Water Works Association; 2001.
  9. AWWA M44 - Distribution Valves: Selection, Installation, Field Testing, and Maintenance; American Water Works Association; 1996.
  10. AWWA C502 - Dry-Barrel Fire Hydrants; American Water Works Association; 1994.
  11. NFPA 1963 - Standard for Fire Hose Connections; National Fire Protection Association; 1998.
  12. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals; American Society for Testing and Materials; 1998.
  13. NFPA 24 - Installation of Private Fire Service Mains and their Appurtenances; National Fire Protection Association; 1995.

14. AWWA C600 - Installation of Ductile-Iron Water Mains and their Appurtenances; American Water Works Association; 1999.
15. AWWA M17 - Installation, Field Testing, and Maintenance of Fire Hydrants; American Water Works Association; 1989.

### **1.3 DEFINITIONS**

- A. Fire-Service Main: Exterior fire-suppression-water piping.
- B. Water Main: Exterior water distribution system piping.
- C. Water Service: Exterior domestic-water piping.
- D. Process Piping: Piping used within treatment facilities or used to connect treatment processes.
- E. The following are industry abbreviations for piping materials:
  1. PVC: Polyvinyl chloride plastic.
  2. DIP: Ductile iron pipe.

### **1.4 SUBMITTALS**

- A. Product Data: For the following:
  1. Piping
  2. Fittings
  3. Meters
  4. Meter boxes
  5. Valves

### **1.5 QUALITY ASSURANCE**

- A. Product Options: Drawings indicate size, profiles, and dimensional requirements of piping and specialties and are based on the specific system indicated.
- B. Regulatory Requirements:
  1. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
  2. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.
- C. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- D. NSF Compliance:
  1. Comply with NSF 14 for plastic potable-water-service piping. Include marking "NSF-pw" on piping.
  2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

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

- A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:
  1. Ensure that valves are dry and internally protected against rust and corrosion.
  2. Protect valves against damage to threaded ends and flange faces.
  3. Set valves in best position for handling. Set valves closed to prevent rattling.

- B. During Storage: Use precautions for valves, including fire hydrants, according to the following:
  - 1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
  - 2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.
- C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use hand wheels or stems as lifting or rigging points.
- D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- F. Protect flanges, fittings, and specialties from moisture and dirt.
- G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

#### **1.7 PROJECT CONDITIONS**

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Owner's written permission.

#### **1.8 PERMITS**

- 1. Contractor shall refer to utility company to obtain all required permits and pay any associated permitting fees prior to commencement of work.

#### **1.9 COORDINATION**

- A. Coordinate service connections to water main with utility company.

**PART 2 - PART - PRODUCTS****2.1 PIPING MATERIALS**

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

**2.2 DUCTILE-IRON PIPE AND FITTINGS**

- A. Ductile-Iron Pipe: AWWA C151, Class 53 with mechanical-joint, push joint, or flanged joint as indicated. Inside of pipe and fittings shall be lined with cement mortar complying with ANSI A21.4 with a minimum thickness of 1/16th inches.
1. Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern – Mechanical joint or flanged joint as indicated.
- a. Joint Restraint: All buried valves and fittings used on this project shall have restrained mechanical joints. For pipe 4" and larger use the Megalug Series 1100 produced by EBAA Iron Inc. or approved equal. For pipe smaller than 4" use a knuckle type joint and restraint such as that manufactured by HARCO (Harrington Corporation of Lynchburg, Virginia) or approved equal.
- B. Ductile-Iron Flexible Expansion Joints: Compound, ductile-iron fitting with combination of flanged and mechanical-joint ends complying with AWWA C110 or AWWA C153. Include two gasketed ball-joint sections and one or more gasketed sleeve sections. Assemble components for offset and expansion indicated. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
- C. Ductile-Iron Deflection Fittings: Compound, ductile-iron coupling fitting with sleeve and flexing sections for up to 20-degree deflection, gaskets, and restrained-joint ends complying with AWWA C110 or AWWA C153. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
- D. Ductile-Iron Expansion Joints: Three-piece, ductile-iron assembly consisting of telescoping sleeve with gaskets and restrained-type, ductile-iron, bell-and-spigot end sections complying with AWWA C110 or AWWA C153. Select and assemble components for expansion indicated. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
- E. Exposed Ductile Iron Pipe and Fittings: The coatings on all exposed piping inside buildings or structures shall be un-coated and suitable for painting.

**2.3 COPPER TUBE AND FITTINGS**

- A. Soft Copper Tube: ASTM B 88, Type K, water tube, annealed temper.
1. Copper Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.
2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.
3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

## **2.4 PVC PIPE AND FITTINGS**

- A. PVC Pressure Pipe: Class 200, SDR 21, for rubber gasketed joints. PVC pressure pipe shall meet the following:
  - 1. Materials: ASTM D 1784.
  - 2. PVC Pressure Rate Pipe: ASTM D 2241.
  - 3. Gaskets: ASTM F 477.
  - 4. Fittings shall be Ductile Iron
- B. PVC, AWWA Pipe: AWWA C900, Class 200, with bell end with gasket and spigot end.
  - 1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
    - a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

## **2.5 GATE VALVES**

- A. AWWA, Cast-Iron Gate Valves: Nonrising-Stem, Resilient-Seated Gate Valves: AWWA C509, gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.
  - 1. Minimum Working Pressure: 200 psig.
  - 2. End Connections: Mechanical joint.
  - 3. Interior Coating: Complying with AWWA C550.

## **2.6 GATE VALVE ACCESSORIES AND SPECIALTIES**

- A. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," bottom section with base of size to fit over valve, and approximately 5 inch diameter barrel.
  - 1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

## **2.7 CHECK VALVES**

- A. Check valves shall have openings or waterways at least equivalent to the full area of the connecting pipes. They shall be of the single balanced disc, swing pattern type, with an outside spring lever, fully bronze mounted, with flanged, or mechanical joint ends as the nature of the connection shall require. In general ruggedness of design and construction, and in materials and workmanship, they shall correspond to the gate valves specified herein. The bottom of the cases shall have no pockets in which gravel, stones, or grit can collect. All internal working parts shall be readily accessible and removable through flanged covers. All check valves shall be checked for water-tightness and shall be tight against a back pressure of not less than 150 psi. Quality shall be equal to the Mueller A-2600 Series or the Clow F5380 Series check valves.
- B. Silent check valves shall be installed where indicated on the plans. Silent check valves shall be the globe style, silent type with semi-steel bodies and bronze or stainless steel trim. They shall be of the wafer design with easily replaceable parts. The silent check valves shall perform equally well in all positions. The silent check valves shall be Val-Matic Silent Check Valves as manufactured by the Val-Matic Valve and Manufacturing Corporation or approved equal.

## **2.8 BUTTERFLY VALVES**

- A. Butterfly valves shall be cast or ductile iron body, rubber-seated; with bronze or stainless steel mountings. Butterfly valves shall be manufactured in full compliance with AWWA C504. Valves shall have standard flange, wafer, or mechanical joint ends, as the nature of the connections shall require. The operating stem shall be equipped with coupling nuts for extension stem. Quality shall be equal to the Dresser 450 Series or Clow F5300 Series butterfly valves. Extension stems and cast iron valve boxes shall be provided as shown on the plans. Floorstands shall be provided where shown on the plans.

## **2.9 ELECTRIC VALVE ACTUATORS**

- A. All electric actuators shall conform to AWWA C540-02 containing the following:
  - 1. motor
  - 2. gearing
  - 3. manual over-ride
  - 4. limit switches
  - 5. torque switches
  - 6. drive coupling
  - 7. integral motor controls
  - 8. position feedback transmitter
  - 9. mechanical dial position indicator
- B. Motor: Induction type with class F insulation protected by means of thermal switches imbedded in the motor windings. The motor shall be specifically designed for actuator service.
  - 1. Electrical: 120 Volt, single phase, 60 hertz.
- C. Motor Enclosure: NEMA 4 (watertight), totally enclosed, non-vented.
- D. Gearing: grease lubricated designed to withstand full torque of motor.
- E. Manual Over-ride: manual operation shall be via power gearing to minimize rim pull and facilitate easy change-over from motor to manual operation when actuator is under load. Return to electric operation mode shall be automatic upon motor operation. A seized or inoperable motor shall not prevent manual operation.
  - 1. Operator: Hand Wheel (or Chain drive if over 6'-6" above standing surface).
- F. Limit Switches: shall be furnished at each end of travel. Limit switch adjustment shall not be altered by manual operation and shall be driven by counter-gear. Adjustment of limit switches shall require no more than five (5) turns of the limit switch adjustment spindle. One set of normally open and one set of normally closed contacts shall be provided each end of travel. Contacts shall be silver and capable of reliably switching low voltage DC source from the control system.
- G. Torque Switches: Each end of travel shall be equipped with a mechanically operated torque switch to trip when the valve load exceeds the torque switch setting. Torque switch adjustment device shall be calibrated directly in engineering units of torque.
- H. All wiring shall be terminated at plug and socket connectors.
- I. Quarter turn actuators shall be furnished with mechanical stops that restrict the valve/actuator travel.
- J. Actuator shall be capable of valve closing times of: 60 seconds.



- K. Operating temperature range: -20 to 160 degrees F with motor controls.
- L. Open/Close Actuators: Integral motor controls shall consist of:
  - 1. reverse starters
  - 2. control transformer
  - 3. phase discriminator
  - 4. monitor relay (to signal fault conditions such as thermal switch trip, torque switch tripped in mid-travel, wrong phase sequence or phase failure)
  - 5. Pushbuttons: "Open", "Stop", "Close"
  - 6. Selector switch: "Local", "Off", "Remote"
  - 7. Indicator lights: red and green.
  - 8. Control system interface with optical isolators to separate incoming voltage signals from the internal motor controls.
- M. Modulating Actuators: Dynamic valve torque shall be no more than 60% of the electric actuator's maximum rated breakaway torque. Power gearing in modulating actuators shall have zero backlash between the motor and the actuator output. Integral motor controls shall consist of:
  - 1. Feedback potentiometer
  - 2. reverse starters
  - 3. control transformer
  - 4. phase discriminator
  - 5. monitor relay (to signal fault conditions such as thermal switch trip, torque switch tripped in mid-travel, wrong phase sequence or phase failure)
  - 6. Pushbuttons: "Open", "Stop", "Close"
  - 7. Selector switch: "Local", "Off", "Remote"
  - 8. Indicator lights: red and green.
  - 9. Positioner capable of accepting a 4-20 mA DC command signal and positioning valve by comparing the command signal with the present valve position as indicated by the feedback potentiometer mounted inside the actuator.
  - 10. The positioner shall be field adjustable to fail to the "Open", "Closed" or "Last" position on loss of 4-20 mA DC command signal.

## **2.10 AIR RELEASE VALVES**

- A. Air release valves shall be of the simple lever type and shall be capable of automatically releasing accumulated air from a fluid system while that system is in operation and under pressure. To assure drop tight shut-off, a viton orifice button shall be used to seal the valve discharge orifice when the valve is in a closed position. The orifice diameter will be sized for use within a given operating pressure range to insure maximum discharge capacity. The body and cover shall be of cast iron. With the exception of the viton orifice button, the leverage mechanism, float, and all other internal trim shall be of stainless steel. The stainless steel float shall be designed to and capable of withstanding a pressure in excess of 1,000 psi. Quality shall be equal to the Val-Matic Models #15, #22, or #25.

## **2.11 PRESSURE RELIEF VALVES**

- A. Pressure relief valves shall by-pass or relieve excess pressures that may occur in the system. It shall be the hydraulically operated, pilot controlled, diaphragm type and shall have a single removable seat and resilient disc. No external packing glands will be allowed and the diaphragm shall not be used as a seating surface. The pilot control shall be a direct acting, adjustable, spring loaded, diaphragm valve designed to permit flow when the controlling pressure exceeds the spring setting. The pilot control system shall operate such that as excess line pressure is dissipated, the main valve will gradually close to a positive, drip tight seating. The valve shall be the globe type and shall be rated for a pressure range of 20 to 200 psi. The valve shall be a Clayton 50 Pressure Relief Valve as manufactured by the Cla-Val Company or an approved equal.

## **2.12 FREE STANDING FIRE HYDRANTS**

- A. Dry-Barrel, High-Pressure Fire Hydrants: AWWA C502, one NPS 4-1/2 and two NPS 2-1/2 outlets, 5-1/4-inch main valve, drain valve, and NPS 6 mechanical-joint inlet. Include interior coating according to AWWA C550. Hydrant shall have cast-iron body, compression-type valve opening against pressure and closing with pressure, and 250-psig minimum working-pressure design.
  - 1. Outlet Threads: NFPA 1963, with external hose thread used by local fire department. Include cast-iron caps with steel chains.
  - 2. Operating and Cap Nuts: Pentagon, 1-1/2 inches point to flat.
  - 3. Direction of Opening: Open hydrant valve by turning operating nut to left or counterclockwise.
  - 4. Exterior Finish: Red alkyd-gloss enamel paint, unless otherwise indicated.

## **2.13 WATER METERS**

- A. Water meters shall be purchased through, and as required by the local utility company.
- B. Description: AWWA C700, displacement-type, bronze main case. Register flow in gallons unless cubic feet are indicated.
- C. Description: AWWA C701, turbine type. Register flow in gallons unless cubic feet are indicated.
- D. Description: AWWA C702, compound-type, bronze case. Register flow in gallons unless cubic feet are indicated.

## **2.14 METER BOXES**

- A. Description: Cast-iron body and cover for disc-type water meter with lettering "WATER METER" in cover; and slotted, open-bottom base section of length to fit over service piping.
  - 1. Option: Base section may be cast-iron, PVC, or other pipe approved by the Engineer.
- B. Description: Cast-iron body and double cover for disc-type water meter with lettering "WATER METER" in top cover; separate inner cover; air space between covers; and slotted, open-bottom base section of length to fit over service piping.
- C. Description: Polymer-concrete body and cover for disc-type water meter with lettering "WATER" in cover; and slotted, open-bottom base section of length to fit over service piping. Include vertical and lateral design loadings of 15,000 lb minimum over 10 by 10 inches square.

## **2.15 EXTERIOR PIPE COATINGS**

- A. Buried Ductile-iron Pipe: Bituminous coated with either coal tar or asphalt base of approximately one mill thickness.
- B. Exposed pipe: Three coat Alkyd Enamel system.

## **PART 3 - PART - EXECUTION**

### **3.1 GENERAL**

- A. Refer to Division 2 Section 02310 "Excavating and Backfilling Trenches" for excavating, trenching, and backfilling.
- B. Field check all dimensions shown on the plans and the "certified" equipment shop drawings and rectify any discrepancies before starting the work. All existing dimensions shall be verified in the field. Interferences shall be brought to the attention of the Engineer in writing.
- C. Elevations of underground piping, uniform slope in direction of flow, and installation details shall be as shown on the plans and as specified in the Technical Specifications.
- D. Any damage caused, directly or indirectly, to structures, buildings, equipment, utilities, roadways, and/or sidings shall be repaired or replaced to the satisfaction of the Engineer.
- E. When obstructions that are not shown on the plans are encountered during the progress of work and interfere so that an alteration of the plans is required, the Owner, through the Engineer, will alter the plans or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions.
- F. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the Owner, to provide clearance as required by federal, state, or local regulations or as deemed necessary by the Owner to prevent future damage or contamination of either structure.

### **3.2 SEPERATION OF WATER MAINS AND SANITARY SEWERS**

- A. Horizontal Separation: Where potable water lines are to be laid parallel to existing or proposed sanitary sewers, it will be necessary to maintain at least ten (10') feet horizontal separation, edge of pipe to edge of pipe, between the gravity and pressure sewer lines and water lines. Pressure sewer line and water lines shall be laid in separate trenches.
  - 1. In cases where the minimum horizontal separation cannot be obtained, water mains shall be laid in a separate trench or on an undisturbed earth shelf at such elevation where the bottom of the water main shall be at least eighteen inches (18") above the top of the sewer line. The Contractor shall notify the Engineer when minimum horizontal separations cannot be attained.
- B. Vertical Separation: Water mains crossing sewers either above or below shall have a minimum of eighteen inches (18") vertical separation from edge of pipe to edge of pipe.
  - 1. In cases where the minimum vertical separation cannot be obtained, water mains shall be constructed of mechanical joint PVC or ductile iron pipe with joints at least ten (10') feet each direction from the crossing point or cased in continuous casing that extends at least 10 feet (10') in each direction of the crossing point. The Contractor shall notify the Engineer when minimum vertical separations cannot be attained.

- C. Separation from Sewer Manholes: Water lines shall be laid with a minimum horizontal clearance of ten feet (10') to any sewer manhole. The Contractor shall notify the Engineer if field conditions are such that the minimum separation cannot be obtained before continuing with construction.

### 3.3 PIPING APPLICATIONS

- A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
- B. Use full lengths of pipe where length between fittings is less than the Mill-random lengths of pipes. Extra joints shall be avoided.
- C. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications below, unless otherwise indicated.
- D. Do not use flanges, unions, or keyed couplings for underground piping.
- E. Underground Water Service Piping: Use the following:
  - 1. Use NPS 3/4 to NPS 2-1/2: Soft copper tube, Type K; wrought-copper fittings; and soldered joints.
  - 2. NPS 4: Ductile-iron or PVC push joint or mechanical joint pipe.
- F. Underground Water Distribution Piping: Use pipe as designated on the plans, or one of the following:
  - 1. Ductile-iron, push joint or mechanical-joint pipe.
  - 2. PVC, SDR 21 Class 200 pipe listed for fire-protection service; Mechanical Joint, Ductile Iron fittings of same class as pipe; and gasketed joints.
- G. Above Ground Piping: Use pipe as designated on the plans, or one of the following:
  - 1. Ductile-Iron, flanged joints and fittings.
  - 2. PVC, C900, flanged joints and ductile iron flanged fittings.

### 3.4 VALVE APPLICATIONS

- A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
  - 1. Underground Valves, NPS 3 and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated gate valves with valve box.

### 3.5 JOINT CONSTRUCTION

- A. Make pipe joints according to the following:
  - 1. Copper Tubing Soldered Joints: ASTM B 828. Use flushable flux and lead-free solder.
  - 2. PVC Piping Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to or ASTM D 3139 and pipe manufacturer's written instructions.
  - 3. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure.

### 3.6 PIPING INSTALLATION

- A. Inspect each pipe for defects:
  - 1. Rung ductile iron pipe with a light hammer to detect cracks.
  - 2. Examine PVC pipe for visible cracks, holes, or foreign materials.
  - 3. All defective, damaged, or unsound pipe and fittings shall be rejected and removed from the site.
- B. The trench shall be so excavated that the pipe, when laid, shall have a true and even bearing on its full length. Excavation of bell holes will be required such that even bearing is achieved. Pipe, fittings, and valves shall be placed in the trench with care and under no circumstances shall pipe or other materials be dropped or dumped into the trench.
- C. Field cutting ductile iron pipe:
  - 1. Use Mechanical pipe cutters.
  - 2. Cuts shall be smooth, straight, and at right angles to the pipe axis.
  - 3. Cutting shall not damage the pipe or lining.
- D. Field cutting PVC pipe:
  - 1. Bevel exterior edge of pipe cuts to prevent damage to gasket.
- E. Bury piping with depth of cover over top at least 42 inches, with top at least 12 inches below level of maximum frost penetration, and according to the following:
  - 1. Under Driveways: With at least 42 inches cover over top.
  - 2. Under Railroad Tracks: With at least 48 inches cover over top.
  - 3. In Loose Gravelly Soil and Rock: With at least 12 inches additional cover.
- F. Install copper tube and fittings according to CDA's "Copper Tube Handbook."
- G. Comply with NFPA 24 for fire-service-main piping materials and installation.
- H. Extend water-service piping and connect to water-supply source, terminating 10 feet outside building line in locations and pipe sizes indicated.
  - 1. Terminate piping with caps, plugs, or flanges as required for piping material.
  - 2. Connect water-service piping to building distribution piping when systems are in place.
- I. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joints as specified above.
- J. Anchor service-entry piping to building wall.

### 3.7 UNFORESEEN OBSTRUCTIONS

- A. Notify the Owner through the Engineer of any obstructions encountered, which are not shown on the plans and interfere so that an alteration of the plans is required. The Owner through the Engineer will alter the plans or order a deviation in line and grade or arrange for the removal, relocation, or reconstruction of the obstruction.

### **3.8 FLANGED SYSTEMS**

- A. All piping that is not to be buried shall be constructed with flanged joints and fittings unless otherwise specified on the plans.
  - 1. Bolts, gaskets and installation shall conform to AWWA C110, Appendix A.
  - 2. Use one gasket per joint.
  - 3. Tighten bolts using the crossover method to ensure even gasket load.
  - 4. Torque wrenches shall be used where required to uniformly torque bolts.
  - 5. Lubricate bolts with oil and graphite at the time of installation except when buried.
- B. Provide all necessary pipe supports required by the piping and valves as shown on the plans as well as any additional supports necessary to properly support piping and equipment during construction
- C. Where piping passes through walls, floors, or roofs, provide all grout, sleeves, plates, flashings, seals, caulking and any other penetration requirements as shown on the plans or as necessary to properly seal the penetration.
- D. Core drill wall, ceiling, or floor penetrations to install pipe as shown on the plans, or where necessary and prior written approval has been received from the Engineer.

### **3.9 EXPOSED PIPE FINISHING**

- A. Ductile-iron Pipe: all DIP to remain exposed shall be sandblasted to remove the bituminous coating and painted.
  - 1. Color shall be as indicated or as selected by the Owner.
- B. Non-coated pipe need not be sandblasted provided that it is factory primed and free of rust or other deleterious substances.
- C. Application of exterior pipe coatings shall be according to Section 09912 "Painting".

### **3.10 LAYING PIPE ON CURVES**

- A. Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints for most "rigid" pipe and in the pipe for most "flexible" pipe. If the pipe is shown curved on the plans and no abrupt change in alignment is shown, it may be assumed that the curves can be made by deflection of the joints with standard lengths of pipe. It may be required to decrease laying lengths to construct deflection at a reduced radius of curvature.
- B. Where field conditions require deflection of curves not anticipated by the plans, the Engineer will determine the methods to be used. No additional payment will be made for laying pipe on curves as shown on the plans, nor for field changes involving standard lengths of pipe deflected at the joints.
- C. Maximum deflections at pipe joints and laying radius for the various pipe lengths are as found in the following standards (latest revisions):
  - 1. Ductile Iron Pipe, Mechanical Joints: ANSI/AWWA C600.
  - 2. Ductile Iron Pipe, Push on Joints: ANSI/AWWA C600.
  - 3. Polyvinyl Chloride (PVC) Pipe: AWWA 900.
- D. When rubber gasket pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curved alignment. Trenches shall be made wider on curves for this purpose.

**3.11 ANCHORAGE INSTALLATION**

- A. Use restrained-joints as specified above.
- B. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

**3.12 VALVE INSTALLATION**

- A. Inspect all gate valves and fittings upon delivery in the field to insure proper working order before installation. They shall be set and jointed to the pipe in accordance with the latest revisions of AWWA Standards for the type of connection ends furnished.
- B. Buried valves shall be installed in a vertical position and be provided with a standard cast iron valve box so arranged that no shock will be transmitted to the valve. The box shall be vertically centered over the operating nut and the cast iron box cover shall be set flush with the road bed or finished surface. A concrete base shall be poured around the valve box cover as detailed on the plans.
- C. After installation, all valves shall be subjected to the field test specified herein. Should any defects in materials or workmanship appear during these tests, correct such defects with the least possible delay and to the satisfaction of the Engineer.

**3.13 WATER-METER INSTALLATION**

- A. Arrange with utility company to install water-meters as shown on the plans. Contractor shall be responsible for cost of materials and permits required.

**3.14 FIRE HYDRANT INSTALLATION**

- A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.
- B. Wet-Barrel Fire Hydrants: Install with valve below frost line. Provide for drainage.
- C. AWWA-Type Fire Hydrants: Comply with AWWA M17.

**3.15 CONNECTIONS**

- A. Water-Main Connection: Arrange with utility company to install water taps into existing mains. Contractor shall be responsible for cost of materials and permits required to make connections.
- B. Connect all other piping to existing and proposed systems as shown on the plans.

**3.16 FIELD QUALITY CONTROL**

- A. Piping Tests: The Contractor shall conduct piping tests on all piping systems before joints are covered and after thrust blocks have hardened sufficiently. Piping equipment and instruments which will not safely withstand the test pressures shall be isolated or removed before testing. Provide spool pieces for any piping, equipment, or instruments removed for testing. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
- B. Perform all tests in the presence of the Engineer or the Engineer's authorized representative.

- C. Hydrostatic Tests: Test at 1-1/2 times working pressure (but not less than 150 psi) for 2 hours. Test pressure to be maintained within 5 psi of 1-1/2 times working pressure.
- D. It is the intent of this specification that all joints shall be watertight and free from visible leaks. Any leak discovered within one (1) year after the date of final acceptance of the work shall be repaired by, and at the expense of, the Contractor.
- E. Prepare a test report based on the satisfactory completion of the hydrostatic test of each piping system or portion of the system. The report shall establish the exact limits of the test. This report shall contain the following:
  - 1. Test pressure at the beginning and end of the test.
  - 2. Time interval of the test.
  - 3. Marked-up set of flow diagrams:
    - a. Sections of pipe shall be yellowed-out and initialed by the Contractor and Engineer, or his representative, as they are tested.
    - b. The Contractor shall be responsible for maintaining this set of flow diagrams, which shall be given to the Engineer at the completion of the job.

### 3.17 IDENTIFICATION

- A. Install continuous underground detectable warning tape during backfilling of trench for underground water-service piping. Locate below finished grade, directly over piping. See Division 2 Section 02310 "Excavating and Backfilling Trenches" for underground warning tapes.
- B. Install locator wire immediately above pipe to valves and risers at buildings.

### 3.18 CLEANING

- A. Clean and disinfect water-distribution piping as follows:
  - 1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
  - 2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or as described below:
    - a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
    - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
    - c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
    - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.
- B. Prepare reports of purging and disinfecting activities.
- C. Flushing
  - 1. After installation and before use by the public, the Contractor shall disinfect the potable water lines. Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that



may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap should be provided large enough to develop a velocity of at least two and five-tenths (2.5) feet per second in the main. One two and one-half (2 1/2) inch hydrant opening will, under normal pressures, provide this velocity in pipe sizes up to and including twelve inches.

2. All taps required for chlorination or flushing purposes, or for temporary or permanent release of air shall be provided for by the Contractor as a part of the construction of water mains.

#### D. Chlorine Requirements

1. Before being placed into service, all new mains and repaired portions of, or extensions to, existing mains shall be chlorinated so that a chlorine residual of not less than twenty-five (25) mg/l remains in the water after standing twenty-four (24) hours in the pipe.
2. A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device, or the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into water within the pipe being treated. Chlorinating devices for feeding solutions of the chlorine gas, or the gas itself, must provide means for preventing the backflow of water into the chlorine.
3. A mixture of water and high-test calcium hypochlorite (HTH, 60 - 70% Chlorine) may be substituted for the chlorine gas water mixture. The dry powder shall first be mixed as a paste and then thinned to a one (1) percent chlorine solution by adding water to give a total quantity of seven and five-tenths (7.5) gallons of water per pound of dry powder. This solution shall be injected in one end of the section of main to be disinfected while filling the main with water in the amounts as shown in the following table:

Chlorine requirements to produce 50 mg/l  
Concentration in 100 feet of pipe (by diameter)

Pipe (inches)	Size 100% Chlorine, lbs.	1% Solution, Gals.
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

4. Tablet disinfection is best suited to short extensions (up to 2500 ft.) and smaller diameter mains (up to 12 inch). Because preliminary flushing must be eliminated in using this method, it should be utilized only when scrupulous cleanliness has been used in construction. It shall not be used if trench water or foreign material has entered the main or if the water is below 41°F.
5. Tablets should be placed in each section of pipe, hydrants, hydrant branches, and other appurtenances. Tablets must be at the top of the main, and shall be attached by an adhesive such as Permatex Number 1, or any alternative approved by the Engineer. Tablets in joints between pipe sections, hydrants, hydrant branches, or appurtenances shall be crushed and placed inside the annular space or rubbed like chalk in butt ends of sections to coat them if the type of assembly does not permit crushing.

6. When using the tablet method, water velocity shall be less than one (1) foot per second during the filling of the section of piping with water.

Number of 5-Grain Hypochlorite Tablets Required  
for a Dosage of 50 mg/l per Length of Pipe Section

Pipe (inches)	Size	Length of Pipe Section (Feet)				
		Up to 13	18	20	30	40
2	1	1	1	1	1	1
4	1	2	2	2	2	2
6	2	2	3	3	4	4
8	2	3	5	5	6	6
10	3	5	7	7	9	9
12	5	6	10	10	14	14

7. Disinfectant Application

- The preferred point of application of the disinfectant is at the beginning of the pipe line extension or any valved section of it, and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine-bearing water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipe line extension. Alternate points of application may be used when approved or directed by the Engineer.
- Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Check valves may be used if desired.
- Treated water shall be retained in the pipe for at least twenty-four (24) hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least twenty-five (25) mg/l.
- In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipe line is filled with the chlorinating agent and under normal operating pressure.

8. Final Flushing and Testing

- Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its length shows upon test, a chlorine residual of less than 1 mg/l. In the event chlorine is normally used in the source of supply, then the tests shall show a residual of not in excess of that carried in the system.
- After flushing, water samples collected on two (2) successive days from the treated piping system, as directed by the Engineer, shall show satisfactory bacteriological results. Bacteriological analysis must be performed by a laboratory approved by the Missouri Department of Natural Resources. The Contractor shall be responsible for securing, delivering, and testing of all samples.
- Should the initial treatment result in an unsatisfactory bacteriological test, the original chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained.

**END OF SECTION 02510**

## SECTION 02925 – PERMANENT EROSION CONTROL AND LANDSCAPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Seeding
  - 2. Mulching
- B. Referenced Sections include the following:
  - 1. Section 02230 - "Site Clearing".
  - 2. Section 01510 - "Temporary Pollution and Erosion Control".
- C. Referenced Standards include the following:
  - 1. ASTM D 5268 - Standard Specification for Topsoil Used for Landscaping Purposes; American Society for Testing and Materials; 1992 (Re-approved 1996).
  - 2. ASTM C 602 - Standard Specification for Agricultural Liming Materials; American Society for Testing and Materials; 1995a (Re-approved 2001).

#### 1.2 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

#### 1.3 SUBMITTALS

- A. Tree Planting Plan: Submit detailed layout and arrangement of proposed tree plantings.
- B. Material Certificates for the following:
  - 1. Seed
  - 2. Mulch Overspray
  - 3. Erosion Control Blankets

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.
  - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

**1.6 SCHEDULING**

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.
- B. Season: Plant seed/seedlings during seasons that will best ensure permanent establishment of grass/trees.
1. Cool season grasses: If planting is performed during the months of June, July, October or November, plant only 75 percent of the specified quantity of seed and then overseed during the months of August, September, December, January or February. If planting is performed during the months of December through May, August, or September, all seed may be planted at one time. Contractor will still be responsible for overseeding areas that may not establish.

**1.7 LAWN MAINTENANCE**

- A. Begin maintenance immediately after each area is planted and continue until plants are established, but for not less than the following periods:
1. Seeded Lawns: 60 days following completion of seeding activities.
- a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.

**PART 2 - PRODUCTS****2.1 SEED**

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with the requirements of the Missouri Seed Law. The percentages for purity and germination or pure live seed shall conform to Missouri Standard Specification for Highway Construction Section 805.
- B. Seed Species Mixes: State-certified seed of grass species, as follows:
1. Tall Fescue Mix:
- a. 55 lbs/acre Tall Fescue
- b. 15 lbs/acre Annual Rye
- c. 5 lbs/acre White Clover

2. Native Grasses Mix:
  - a. 30 lbs/acre Wheat
  - b. 8 lbs/acre Tall Fescue
  - c. 6 lbs/acre Big Bluestem
  - d. 6 lbs/acre Little Bluestem
  - e. 3 lbs/acre Sideoats Grama
  - f. 6 lbs/acre Indiangrass
  - g. 1 lbs/acre Switchgrass

## **2.2 TOPSOIL**

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
  1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
    - a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained sites where topsoil occurs at least 4 inches deep; do not obtain from bogs or marshes.

## **2.3 INORGANIC SOIL AMENDMENTS**

- A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:
  1. Class: Class T, with a minimum 99 percent passing through No. 8 sieve and a minimum 75 percent passing through No. 60 sieve.
  2. Application Rate: 1000 lb per acre, or other application rate based on a soil analysis, as approved by the ENGINEER.

## **2.4 FERTILIZER**

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  1. Tall Fescue Mix:
    - a. Nitrogen: 80 lbs per acre.
    - b. Phosphoric acid: 160 lbs per acre.
    - c. Potash: 160 lbs per acre.
  2. Native Grass Mix:
    - a. Nitrogen: 40 lbs per acre.
    - b. Phosphoric acid: 80 lbs per acre.
    - c. Potash: 80 lbs per acre.

## **2.5 MULCHES**

- A. Vegetative Mulch with an Overspray for Seeded Areas
  - 1. Mulch: Prairie hay (any combination of Big Bluestem, Little Bluestem, Indiangrass, Sideoats Grama, native wildflowers) or straw (from oats, ry, wheat or barley). Mulch shall be clean and bright, relatively free of foreign material and dry enough to spread properly. Mulch shall be free of prohibited weed seed as stated in the Missouri Seed Law and shall be relatively free of all other noxious and undesirable seed.
  - 2. Overspray: Virgin wood cellulose fibers or recycled slick paper conforming to requirements of Section 802 of Missouri Standard Specifications for Highway Construction. Material must not contain any germination-inhibiting or growth-inhibiting substances. Overspray shall be green in color after application and shall be evenly dispersed and suspended when agitated in water. Fibers shall not be water soluble.
- B. Embedded Mulch for Seeded Areas
  - 1. Mulch, as specified in 2.5(A)(1) above, embedded into the soil by use of a disk-type roller having flat serrated disks spaced not more than 10 inches.

## **2.6 EROSION-CONTROL BLANKETS**

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas to receive grass and trees for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- B. B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### **3.3 SUBGRADE PREPARATION**

- A. Limit subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Remove stones larger than 2-inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property. Apply 3 inches (plus/minus 1 inch) of topsoil on all newly graded subgrades to be planted. Incorporate topsoil by disking to a depth of 5 inches from the final surface.
  - 1. Apply fertilizer and lime to topsoil before disking.
    - a. Delay mixing fertilizer with soil if planting will not proceed within a few days.
    - b. Mix lime with dry soil before mixing fertilizer.

2. If planting soil mix is used, spread mix to a depth of 4 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
  - a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil mix.
- C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus ½ inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
- D. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

### **3.4 SEEDING**

- A. Application: Use the seed species mix as defined in Paragraph 2.1 of this Section for each of the following applications:
  1. Within 20 feet of Edge of Pavement: Tall Fescue Mix.
  2. Residential or commercial lawns: Tall Fescue Mix.
  3. Natural fields or pastures: Native Grasses Mix.
  4. Cultivated fields or grazing pastures: as approved by property owner and Engineer to minimize conflicts with existing or proposed crop.
- B. Sow seed with spreader or seeding machine (hydraulic seeding methods not allowed). Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  1. Do not use wet seed or seed that is moldy or otherwise damaged.
- C. Sow seed at the rates given in Paragraph 2.1.B of this Section.
- D. Rake seed lightly into top 1/8 inch of topsoil and roll lightly.
- E. Protect seeded areas with slopes steeper than 3H:1V with embedded mulch or erosion-control blankets installed and stapled according to manufacturer's written instructions.
- F. Protect seeded areas with slopes steeper than 6H:1V by use of embedded mulch or vegetative mulch with overspray.

### **3.5 SATISFACTORY ESTABLISHMENT OF GRASSES**

- A. Grasses
  1. At end of maintenance period, a healthy, uniform, close stand of grass shall have been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
  2. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

**3.6 CLEANUP AND PROTECTION**

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove temporary erosion-control measures, as required, after grass establishment period.

**END OF SECTION 02925**



## SECTION 03300 – CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. Referenced Sections include the following:
  - 1. None.
- C. Referenced Standards include the following:
  - 1. ACI SP 66 - ACI Detailing Manual; American Concrete Institute; 1994.
  - 2. ASTM C 94/C94M - Standard Specification for Ready-Mixed Concrete; American Society for Testing and Materials; 2000e2.
  - 3. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; American Society for Testing and Materials; 2000.
  - 4. ASTM E 329 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction; American Society for Testing and Materials; 2000b.
  - 5. ASTM E 548 - Standard Guide for General Criteria Used for Evaluating Laboratory Competence; American Society for Testing and Materials; 1994e1.
  - 6. ACI CP 1 - Technician Workbook for ACI Certification of Concrete Field Testing Technician – Grade I; American Concrete Institute; 2002.
  - 7. ACI 301 - Specifications for Structural Concrete; American Concrete Institute; 1999.
  - 8. ACI 117 - Standard Tolerances for Concrete Construction and Materials; American Concrete Institute; 1990.
  - 9. ASTM A 615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; American Society for Testing and Materials; 2001b.
  - 10. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; American Society for Testing and Materials; 1997ae1.
  - 11. ASTM A 486 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement; American Society for Testing and Materials; 1997ae1.
  - 12. Concrete Steel Reinforcing Institute (CRSI) - Manual of Standard Practice; 26th ed., 1997.
  - 13. ASTM C 150 - Standard Specification for Portland Cement; American Society for Testing and Materials; 2000.
  - 14. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete; American Society for Testing and Materials; 2001.
  - 15. ASTM C 33 - Standard Specification for Concrete Aggregates; American Society for Testing and Materials; 2001a.
  - 16. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; American Society for Testing and Materials; 2001.
  - 17. American Association of State Highway and Transportation Officials (AASHTO) - Standard Specifications for Transportation Materials and Methods of Sampling and Testing, Part I: Specifications, 21st ed., 2001.

18. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; American Society for Testing and Materials; 1999.
19. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete; American Concrete Institute; 1991.
20. ACI 374R - Guide to Formwork for Concrete; American Concrete Institute; 2001.
21. ACI 309R - Guide for Consolidation of Concrete; American Concrete Institute; 1996.
22. ACI 306.1 - Standard Specification for Cold Weather Concreting; American Concrete Institute; 1990.
23. ACI 305R - Hot Weather Concreting; American Concrete Institute; 2000.
24. ASTM - Standard Practice for Sampling Freshly Mixed Concrete; American Society for Testing and Materials; 1999.
25. ASTM - Standard Test Method for Slump of Hydraulic Cement Concrete; American Society for Testing and Materials; 2000.
26. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method; American Society for Testing and Materials; 1997e1.
27. ASTM C 173/C 173M - Standard Test Method of Air Content of Freshly Mixed Concrete by the Volumetric Method; American Society for Testing and Materials; 2001e1.
28. ASTM C 1064 - Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete; American Society for Testing and Materials; 2001.
29. ASTM C 31/C 31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field; American Society for Testing and Materials; 2001.
30. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; American Society for Testing and Materials; 2001.
31. ASTM C 42/C 42M - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete; American Society for Testing and Materials; 1999.

## **1.2 DEFINITIONS**

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

## **1.3 SUBMITTALS**

- A. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
  1. Indicate amounts of mix water to be withheld for later addition at Project site.
- B. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
  - 1. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- E. ACI Publications: Comply with the following, unless more stringent provisions are indicated:
  - 1. ACI 301, "Specification for Structural Concrete".
  - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials".

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

**PART 2 - PRODUCTS****2.1 FORM-FACING MATERIALS**

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
  - 1. Plywood, metal, or other approved panel materials.
- B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 3/4 inch to the plane of the exposed concrete surface.

**2.2 STEEL REINFORCEMENT**

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Wire: ASTM A 82, as drawn.
- C. Deformed-Steel Wire: ASTM A 496.

**2.3 REINFORCEMENT ACCESSORIES**

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.

**2.4 CONCRETE MATERIALS**

- A. Portland Cement: ASTM C 150, Type I/II.
  - 1. Fly Ash: ASTM C 618, Class C or F.
- B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:
  - 1. Class: Severe weathering region, but not less than 3S.
  - 2. Nominal Maximum Aggregate Size: 3/4 inch.
- C. Water: Potable and complying with ASTM C 94.

**2.5 ADMIXTURES**

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.

**2.6 CURING MATERIALS**

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. Yd. dry.
- C. Water: Potable.

**2.7 RELATED MATERIALS**

- A. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

## 2.8 CONCRETE MIXES

- A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
  - 1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- C. Footings and Foundation Walls: Proportion normal-weight concrete mix as follows:
  - 1. Compressive Strength (28 Days): 4000 psi.
  - 2. Maximum Slump: 4 inches.
- D. Cementitious Materials: For concrete exposed to deicers, limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements.
- E. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
  - 2. Combined Fly Ash and Pozzolan: 25 percent.
- F. Maximum Water-Cementitious Materials Ratio: 0.45 for concrete exposed to deicers or subject to freezing and thawing while moist.
- G. Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus 1 or minus 1.5 percent, unless otherwise indicated:
  - 1. Air Content: 6 percent for 3/4-inch- nominal maximum aggregate size.
- H. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- I. Admixtures: Use admixtures according to manufacturer's written instructions.

## 2.9 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

**PART 3 - EXECUTION****3.1 FORMWORK**

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
  - 1. Class A, 1/8 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
  - 1. Do not use rust-stained steel form-facing material.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. Chamfer exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

**3.2 EMBEDDED ITEMS**

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor bolts, accurately located, to elevations required.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

### 3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
  - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  - 2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
  - 3. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  - 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement, unless approved by Engineer.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

- D. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
  - 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
  - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
  - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- F. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
  - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
  - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

### 3.7 FINISHING FORMED SURFACES

- A. Remove forms and form ties, repair surface defects, and patch any cones or depressions caused by forms or form ties prior to finishing surface.
- B. Rubbed Finish: Apply the following to smooth-formed finished concrete:
  - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.



### 3.8 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

### 3.9 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. Ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

### 3.10 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than ½ inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- E. Repair materials and installation not specified above may be used, subject to Engineer's approval.

### 3.11 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
  2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
  4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
  5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.
  6. Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at 7 days and two at 28 days.
    - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.
- C. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.

- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Engineer.

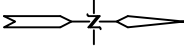
**END OF SECTION 03300**

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**EXISTING UTILITIES NOTE:**

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE BASED ON VISIBLE ABOVE-GROUND OBJECTS AND MARKINGS, PREVIOUS RECORD DRAWINGS AND SURVEYS PROVIDED TO SMITHSCO. BY OBJECTS AND PAINT OR OTHER MARKINGS MADE BY UTILITY COMPANIES AND/OR UTILITY LOCATOR SERVICES PRIOR TO THE FIELD SURVEY. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED OBJECTS. LOCATIONS OF UNDERGROUND UTILITIES/STRUCTURES CONDUITS MAY VARY FROM THE LOCATIONS SHOWN HEREUPON. ADDITIONAL BURIED UTILITIES THAT DO NOT HAVE SURFACE MARKERS MAY BE ENCOUNTERED DURING EXCAVATION.

2. SMITHSCO IS NOT A UTILITY LOCATOR SERVICE. SMITHSCO IS NOT RESPONSIBLE OR LIABLE FOR DAMAGES RESULTING FROM UNMARKED OR INACCURATELY MARKED UNDERGROUND UTILITIES OR STRUCTURES. CALL 1-800-DIG-RI-TE.



**NOT FOR CONSTRUCTION**

SURVEYED BY: N/A      DATE: N/A  
DESIGNED BY: GCB      DATE: 10/20  
DRAWN BY: MDW      DATE: 10/20  
CHECKED BY: GCB      DATE: 10/20  
FIELD BOOK: N/A

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# SMITH & CO.

## ENGINEERS

901 VINE STREET, P.O. BOX 72  
POPLAR BLUFF, MISSOURI 63902  
PHONE: (573) 785-3621 FAX: (573) 785-2651  
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CIVIL ENGINEERING • SURVEYING •  
ENVIRONMENTAL & GEOTECHNICAL SERVICES • MATERIAL TESTING

**MALDEN SPLASH PAD**  
**MALDEN, MISSOURI**

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**BOUNDARY / GENERAL LAYOUT**





ITEM	SKU	COMPONENT NAME	QTY	ITEM	SKU	COMPONENT NAME	QTY
1	0011-0885	FS BLOW FISH	1	11	0010-0414	FS TEAM BLASTER	2
2	0011-1571	FS CAROUSEL CANNON 2	1	12	0010-8901	FS TURTLE	1
3	0010-7553	FS CHARGER	1	13	0010-7467	GS PUDDLE 2	1
4	0010-1655	FS DAISY MAE (WINDY)	1	14	0010-4592	FS WATERFALL 3	1
5	0011-0845	FS FLUTTERBY	1	15	0010-7488	GS TOWER SPRAY	2
6	0010-0368	FS FROGGIE-O	1	16	0010-7494	GS DOUGHNUT (STEADY STREAM)	1
7	0010-0485	FS FUN-BRELLA	1				
8	0010-7714	FS GEROME	1	17	0010-1854	ACTIVATOR: POWER POST	1
9	0010-1504	FS RAIN CAP	1	18	DRA-00007	DRAIN SQUARE 6IN OUTLET	3
10	0010-0377	FS SPIRAL TUNNEL	1				

LOCAL REGULATIONS MAY REQUIRE THE USE OF IMPACT ATTENUATING SURFACES FOR SOME INSTALLATIONS - CHECK LOCAL CODES PRIOR TO FINAL DESIGN AND INSTALLATION.

11 x 17 plot

FOR INFORMATION PURPOSES ONLY. LOCAL LANDSCAPE ARCHITECT, ENGINEER &/OR APPROPRIATE AUTHORITIES HAVING JURISDICTION MUST COMPLETE ALL PARK LAYOUT, MECHANICAL & ELECTRICAL DESIGN PRIOR TO CONSTRUCTION.

DESIGNED BY:  
WATERPLAY SOLUTIONS CORP

DWG NAME: WATERPLAY CONCEPTUAL LAYOUTSHEET  
1/4

SCALE: 1/8" = 1'-0"DRAWN BY: DSDATE: MAR 06/23REV #: 4

NOT FOR CONSTRUCTION PURPOSES

FRISCO PARK  
MALDEN, MO

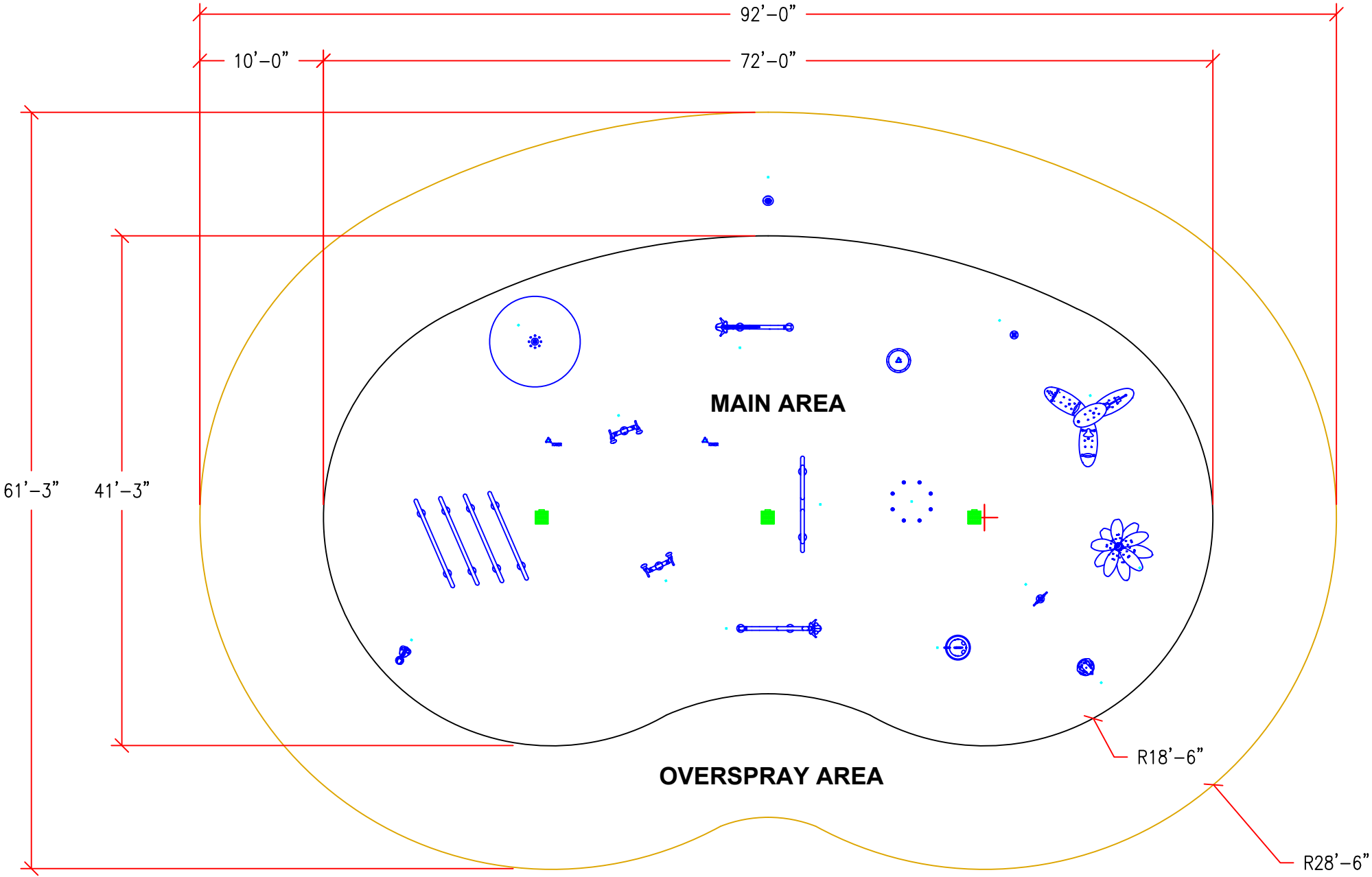
		DS	DB	MM	DS	REV'D BY	REV DATE
4	COMPLETED FINAL DRAWING						MAR 27/24
3	UPDATED GROUND SPRAY AND DOUGHNUT NOZZLE						MAR 15/24
2	SWAPPED MISTY TWISTY FOR RAIN CAP						MAY 01/23
1	SITE REDESIGN						APR 21/23

 **WATERPLAY**  
BY MAKER

805 CROWLEY AVE, KELOWNA BC, CANADA V1Y 7G6  
TEL. (250) 712-3393 FAX (250) 861-4814  
EMAIL info@waterplay.com

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- NOTES:
- 1. MAIN AQUATIC PLAY PAD AREA: 2421 SQ. FT.  
TOTAL AREA, INCLUDING OVERSPRAY ZONE: 4625 SQ. FT.
  - 2. TO AVOID POTENTIAL DAMAGE TO SURROUNDING SOFTSCAPE AND TO KEEP PEDESTRIAN TRAFFIC FROM GETTING WET, WATERPLAY RECOMMENDS A MINIMUM OVERSPRAY OF 2.44 METRES (8'). FOR AREAS WITH HIGH WINDS, A LARGER OVERSPRAY ZONE MAY BE REQUIRED.
  - 3. GRADE SURROUNDING OUTSIDE PERIMETER LANDSCAPE TO PROVIDE ADDITIONAL DRAINAGE AWAY FROM OVERSPRAY PAD.
  - 4. SLOPES (INCLUDING MAIN AND OVERSPRAY AREAS) TO PROVIDE POSITIVE DRAINAGE TO DRAINS. IF CODE REQUIRES THAT THERE BE A ZONE SLOPING AWAY FROM THE MAIN AREA, WATERPLAY RECOMMENDS AN ADDITIONAL DRY ZONE TO MEET THAT REQUIREMENT.
  - 5. SLAB GRADES SUBJECT TO ENGINEER APPROVAL (NOTE ADA MAX CROSS SLOPE GRADE IS 2%).



11 x 17 plot

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DESIGNED BY:  
WATERPLAY SOLUTIONS CORP

DWG NAME: WATERPLAY PAD CONCEPT LAYOUTSHEET  
2/4

SCALE: 3/32" = 1'-0"DRAWN BY: DSDATE: MAR 06/23REV #: 4

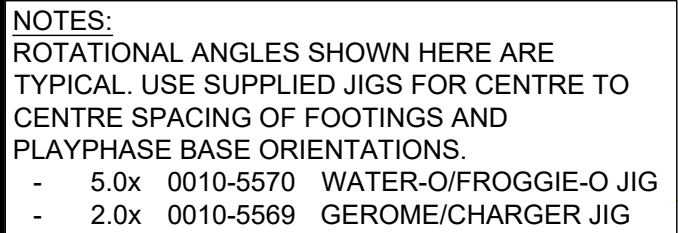
NOT FOR CONSTRUCTION  
PURPOSES

FRISCO PARK MALDEN, MO		COMPLETED FINAL DRAWING		DS	DS	MAR 27/24	REV DATE
		UPDATED GROUND SPRAY AND DOUGHNUT NOZZLE		DB	DB	MAR 15/24	
		SWAPPED MISTY TWISTY FOR RAIN CAP		MM	MM	MAY 01/23	
		SITE REDESIGN		DS	DS	APR 21/23	
		DESCRIPTION		REV'D BY	REV'D BY	REV DATE	

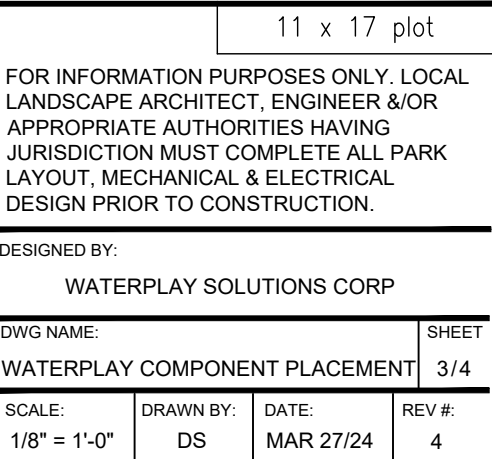
**WATERPLAY**  
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- NOTES:**
1. ALL DIMENSIONS MEASURED FROM DIMENSION ORIGIN (0,0) TO CENTRE OF FOOTING.
  2. REFER TO FOOTING DETAILS FOR EACH WATER STRUCTURE.
  3. LOCATE, SIZE AND SPECIFY QUANTITY OF DRAINS TO PREVENT STANDING WATER.
  4. GROUND ALL COMPONENTS TOGETHER WITH GROUNDING WIRE AND BASE PLATE GROUNDING LUG.
  5. ANGLES NOTED, REFERENCE ORIENTATION OF THE PLAYPHASE BASE FLANGE FASTENERS AS THEY RELATE TO THE X-Y PLANE. FOR ANGLES NOT IDENTIFIED, FASTENERS ARE TO BE INSTALLED ALONG X- PLANE.
  6. DRAIN LOCATION TO BE DETERMINED ONCE SLOPE OF SPLASH PAD IS ESTABLISHED.



NOT FOR CONSTRUCTION  
PURPOSES

FRISCO PARK  
MALDEN, MO

REV	DESCRIPTION	REV'D BY	REV DATE
4	COMPLETED FINAL DRAWING	DS	MAR 27/24
3	UPDATED GROUND SPRAY AND DOUGHNUT NOZZLE	DB	MAR 15/24
2	SWAPPED MISTY TWISTY FOR RAIN CAP	MM	MAY 01/23
1	SITE REDESIGN	DS	APR 21/23



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- NOTES:
1. THIS IS A PRELIMINARY SCHEMATIC, SITE PIPING MUST BE DETERMINED AND MEASURED ON-SITE. REFER TO LOCAL CODES TO ENSURE CODE COMPLIANCE.
  2. WATER LINES SHALL HAVE POSITIVE DRAINAGE FROM AQUATIC PLAY FEATURES TO VAULT OR LOW POINT FOR WINTERIZING AND MAINTENANCE.
  3. PRESSURE CONTROL AND BACKFLOW PREVENTER SHALL BE INSTALLED AT MAIN WATER SOURCE UPSTREAM FROM MANIFOLD VALVES, AS DETERMINED BY LOCAL AUTHORITIES.
  4. DYNAMIC WATER SUPPLY PRESSURE RECOMMENDED AT THE MANIFOLD IS 138-207 KPA (20-30 PSI). A HIGHER MANIFOLD PRESSURE MAY BE REQUIRED FOR PRESSURE LOSSES BETWEEN MANIFOLD AND FEATURES.
  5. EQUIPMENT SHALL BE EASILY ACCESSIBLE BY STAFF AND SECURED FROM PUBLIC.
  6. GPM IN VALVE TABLE IS FOR MANUFACTURER RECOMMENDED FEATURE DISPLAY.
  7. VALVE TABLE RECOMMENDED LINE SIZE BASED ON 8 FPS PIPE VELOCITY, NOT ACCOUNTING FOR PRESSURE LOSS BETWEEN MANIFOLD AND FEATURES.
  8. WATERPLAY CONTROLLER CONFIGURED FOR A POTABLE WATER SUPPLY.

LEG #	COMPONENT NAME	QTY/LEG	GPM	LINE SIZE FROM MANIFOLD
1	FS: CAROUSEL CANNON 2	1	2	1.5 in
2	FS: SPIRAL TUNNEL	0.5	15	1.5 in
3	FS: SPIRAL TUNNEL	0.5	15	1.5 in
4	FS: RAIN CAP	1	14	1.5 in
5	GS: TOWER SPRAY	2	18	1.5 in
5	FS: TEAM BLASTER	1	8	1.5 in
6	FS: TEAM BLASTER	1	8	1.5 in
8	FS: CHARGER	1	14	1.5 in
9	FS: GEROME	1	14	1.5 in
10	FS: FROGGIE-O	1	8	1.5 in
11	GS: PUDDLE 2	1	3	1.0 in
12	GS: DOUGHNUT SPRAY (STEADY STREAM)	1	8	1.0 in
13	FS: BLOW FISH	1	3	1.5 in
14	FS: FUN-BRELLA	1	14	1.5 in
15	FS: TURTLE	1	2	1.5 in
16	FS: FLUTTERBY	1	1	1.5 in
17	FS: WATERFALL 3	1	15	1.5 in
18	FS: DAISY MAE (WINDY)	1	5	1.5 in

11 x 17 plot

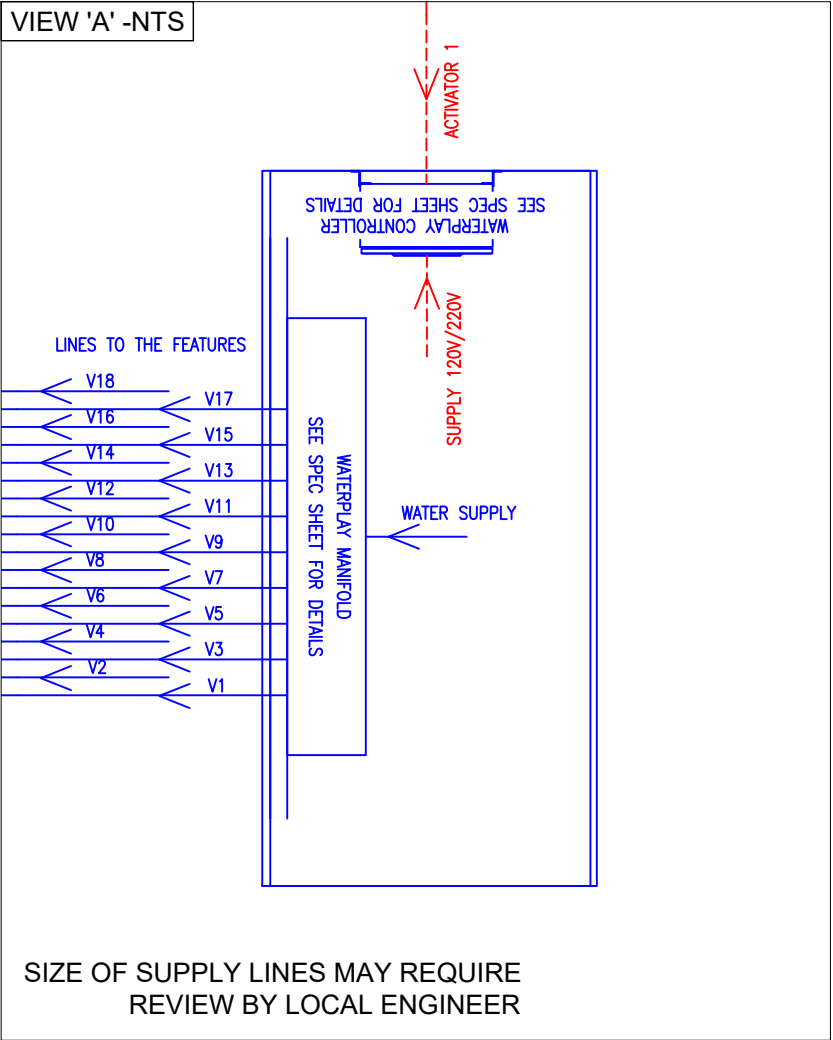
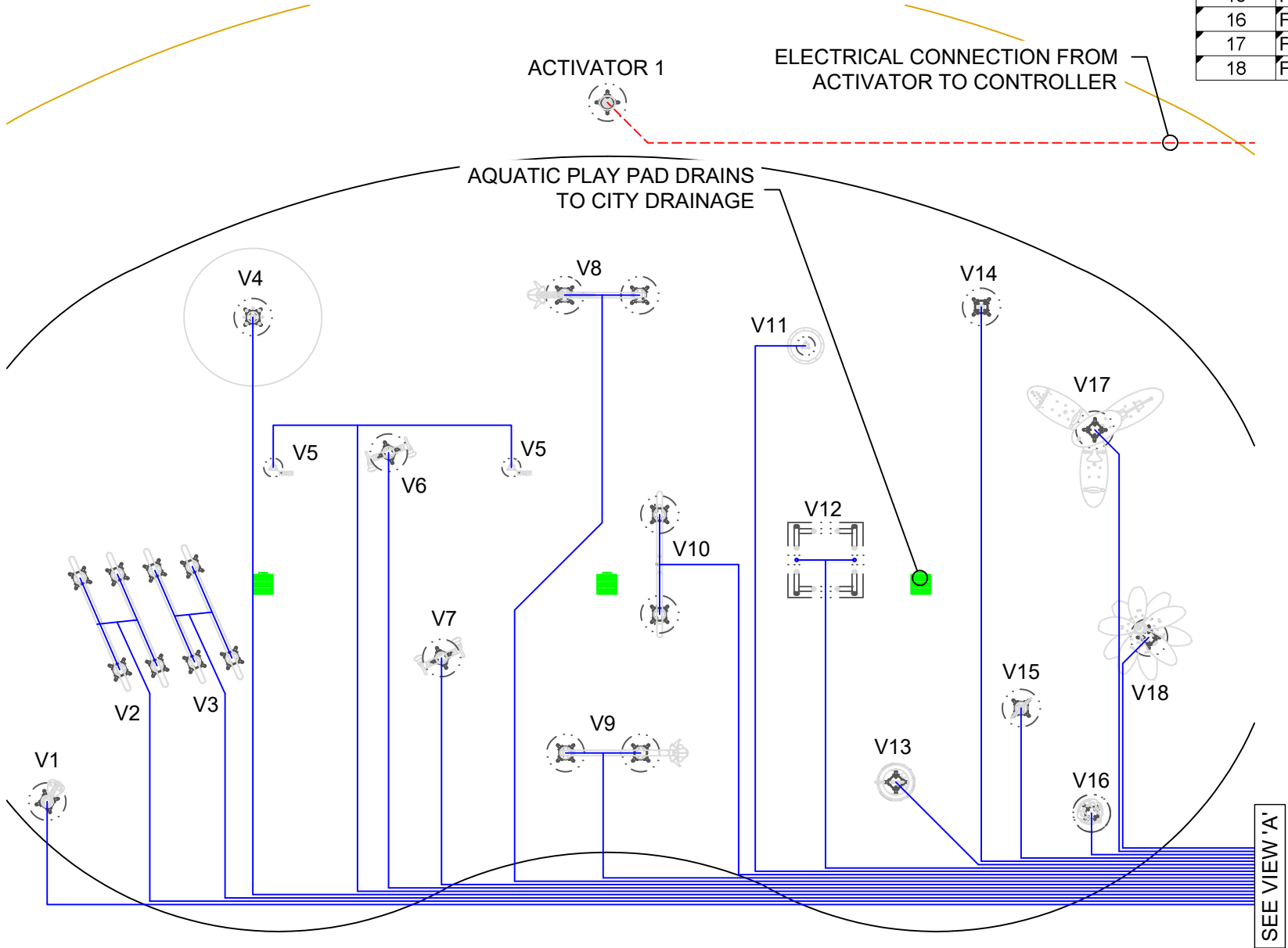
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DESIGNED BY:  
WATERPLAY SOLUTIONS CORP

DWG NAME: WATERPLAY PIPING SCHEMATIC  
SHEET 4/4

SCALE: 1/8" = 1'-0"  
DRAWN BY: DS  
DATE: MAR 27/24  
REV #: 4

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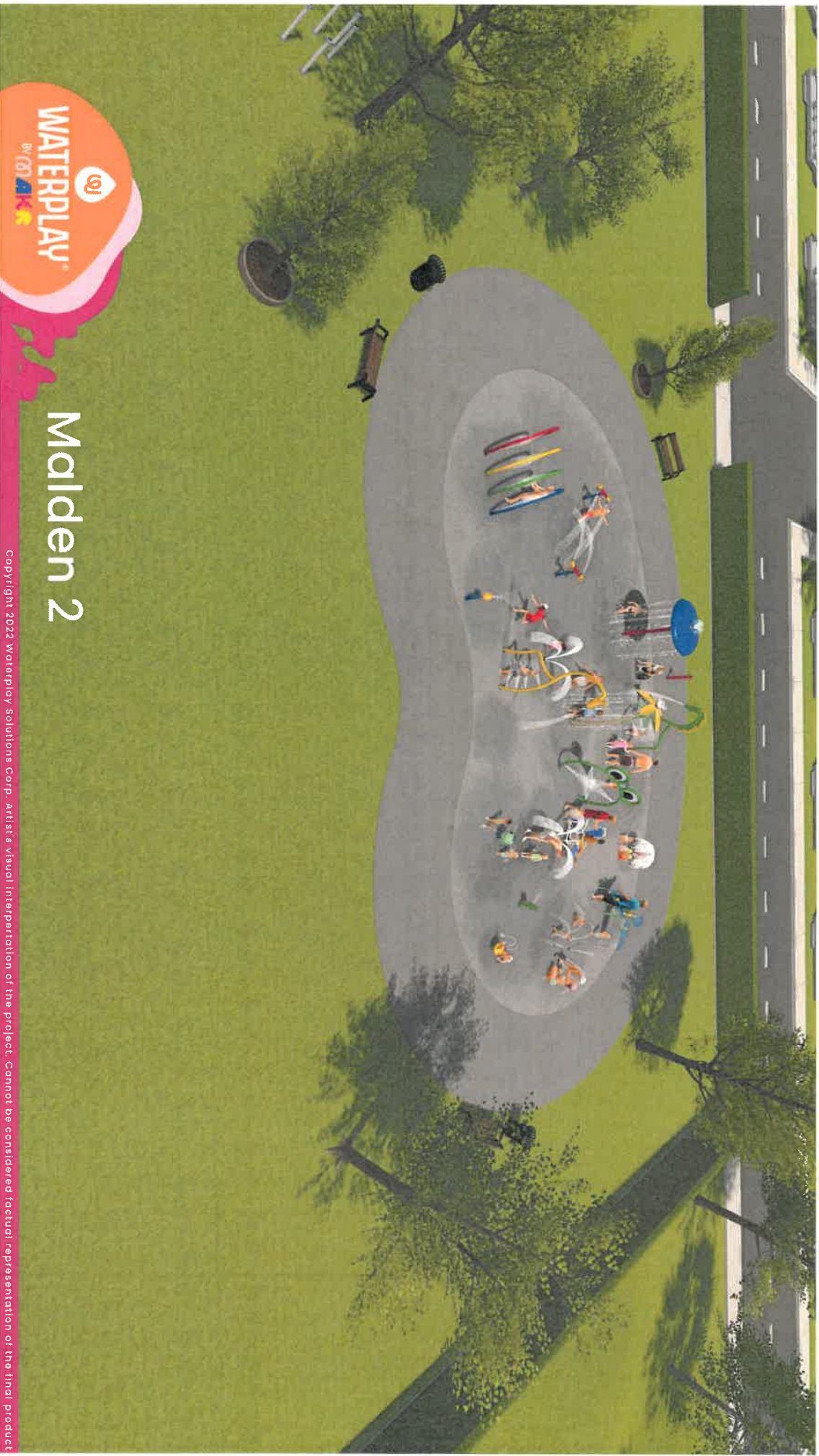


FRISCO PARK  
MALDEN, MO

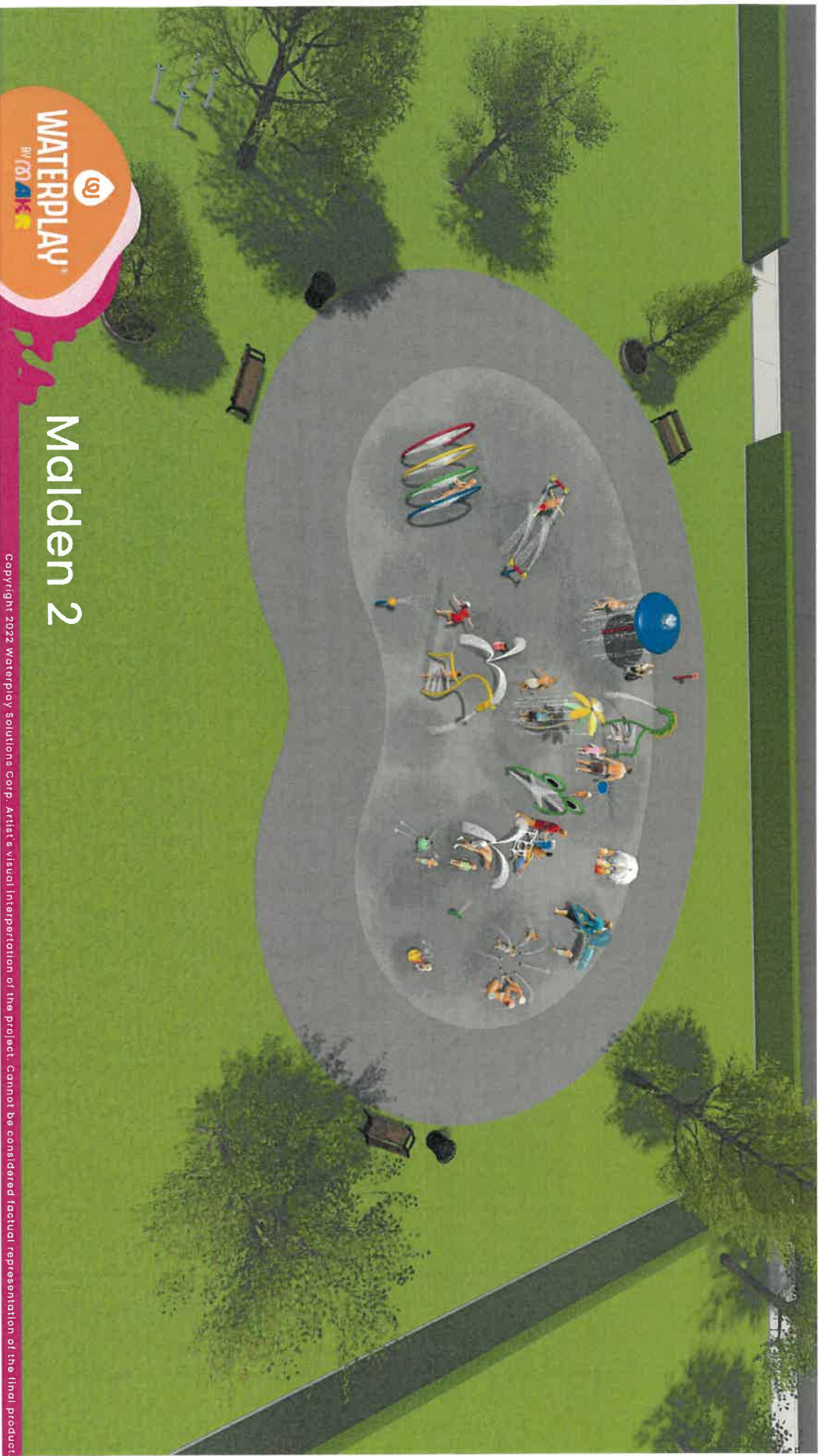
REV	DESCRIPTION	REV'D BY	REV DATE
4	COMPLETED FINAL DRAWING	DS	MAR 27/24
3	UPDATED GROUND SPRAY AND DOUGHNUT NOZZLE	DB	MAR 15/24
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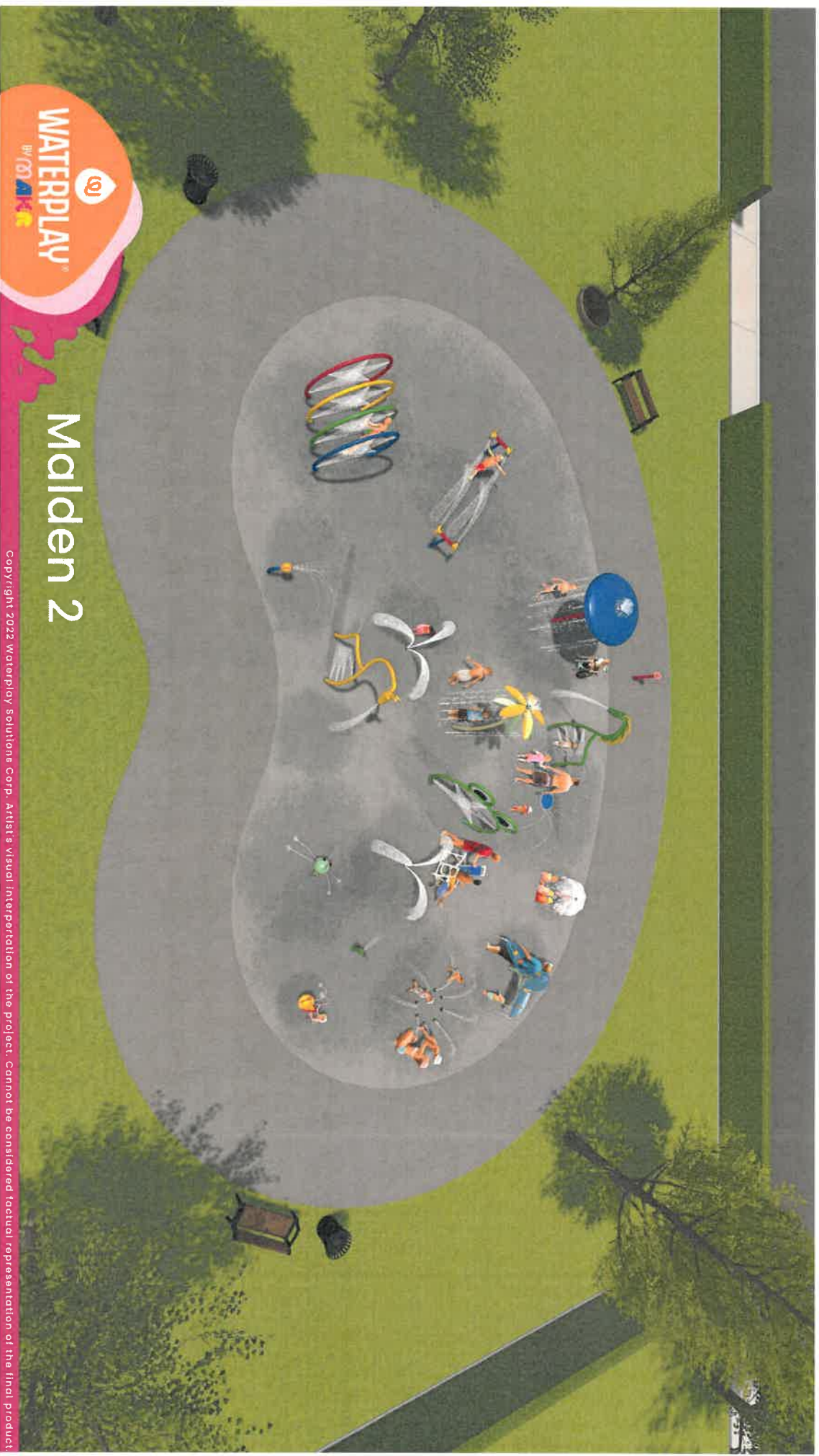






# Malden 2

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## Malden 2

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