

PROJECT MANUAL FOR

WATER METER INSTALLATION

**CONTRACT A – METER CROCK INSTALLATION
CONTRACT B – METERING / INTERFACE EQUIPMENT**

REBID

MAY 2024

PREPARED BY:



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PREPARED FOR:

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220924

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SECTION 001113 - INVITATION TO BID

The Village of South Solon will receive sealed proposals for the **Water Meter Installation**. Bids will be received until 11:00 A.M., Local Time, on May 14, 2024, at the office of the Owner as listed below.

Bid packages may be delivered by priority U.S. Mail, express carriers, etc. or may be hand delivered to the office of the Owner, between 8 AM and 11 AM on May 14, 2024. Proposals shall be addressed to Village of South Solon, 7120 North Street, South Solon, OH 43153 and shall be marked “**Sealed Bid – Contract A/Meter Crock Installation**” or “**Sealed Bid – Contract B/ Metering/Interface Equipment.**”

The project generally consists of the installation of residential potable water meters, provision of meter interface equipment/software and related appurtenances. The project is structured in two contracts as follows: Contract A – Meter Crock Installation and Contract B – Metering/Interface Equipment. Bidders may offer a proposal for one or both contracts at their discretion. The opinion of probable cost for the Contract A is \$280,450. The opinion of probable cost for the Contract B is \$104,000.

Bids must be in accordance with drawings and specifications and on forms available from CT Consultants, Inc. at a non-refundable cost of One Hundred Dollars (\$ 100.00). Documents may be ordered by registering and paying online at <https://bids.ctconsultants.com>. Please contact planroom@ctconsultants.com or call (440) 530-2395 if you encounter any problems viewing, registering or paying for the documents.

The bid specifications, drawings, plan holders list, addenda, and other bid information (but not the bid forms) may be viewed and/or downloaded for free via the internet at <https://bids.ctconsultants.com>. The bidder shall be responsible to check for Addenda and obtain same from the web site.

Bidders who submit a Bid must be a Plan Holder of Record at the Issuing Office. Bids from Bidders who are not on the Plan Holders List may be returned as not being responsive.

No Bid will be received unless accompanied by a Bid Guaranty equal to at least 100% of the maximum Bid, or a certified check, cashier’s check, or letter of credit equal to at least 10% of the maximum Bid, payable to the Owner as a guarantee that after the Bid is accepted, the Bidder will execute and file the Agreement and 100% Performance and Payment Bonds within 10 days of the Notice of Award.

All Contractors and Subcontractors involved with the project will, to the extent practicable, use Ohio products, materials, services, and labor in the implementation of the project. Domestic steel use requirements as specified in Section 153.011 of the Revised Code apply to this project. Bids of corporations not chartered in Ohio must be accompanied by proper certification that the corporation is authorized to do business in Ohio.

Contractor compliance with the Equal Employment Opportunity requirements of Ohio Administrative Code Chapter 123, the Governor’s Executive Order of 1972, and Governor’s Executive Order 84-9 shall be required.

The Contractor and all Subcontractors shall pay employees at a rate not less than the minimum wages specified in the current wage determination in accordance with the Davis-Bacon Act.

Any Bid may be withdrawn prior to the scheduled closing time for receipt of Bids, but no Bidder shall withdraw his Bid within 60 days after the actual opening thereof.

Contract Award shall be made based on the lowest and best Bidder.

The Village of South Solon reserves the right to reject any or all bids, to waive any informalities or irregularities in the bids received, and to accept any bid which it deems most favorable. Any bid submittals deemed by the Owner to be incomplete or non-responsive will be rejected.

BY THE ORDER OF:

Village of South Solon
Joseph L. Haney, Mayor

Publish: 4/27/2024, 5/4/2024

SECTION 002113 - INSTRUCTIONS TO BIDDERS

A. These Instructions to Bidders establish requirements for Bidding and Award of Contract.

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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 Issuing Office.

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 QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of Owner's request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

3.02 Bidder must be prepared to submit evidence of Bidder's qualifications to do business in the state where the Project is located prior to award.

3.03 Bidder shall submit Section 004513 "Bidders Qualifications" and all information requested therein with the Bid.

ARTICLE 4 EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 Subsurface and Physical Conditions

A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 Hazardous Environmental Condition

A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 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.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

4.06 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.

4.07 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.

4.08 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 5 PRE-BID CONFERENCE

5.01 A prebid conference will not be held for the Project.

ARTICLE 6 SITE AND OTHER AREAS

6.01 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 7 INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer 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.

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

ARTICLE 8 BID SECURITY

8.01 A Bid must be accompanied by a Bid Guarantee, payable to Owner, in the form of either:

- 1) A Bid Guaranty in the amount of 100% of the Bid, or
- 2) A Certified Check, or Cashier's Check, or a Letter of Credit, pursuant to Chapter 1305 of the Ohio Revised Code, in the amount of 10% of the Bid.

The Bid Guaranty shall provide for the requirements of Section 153.54 of the Ohio Revised Code, and provide that, upon the recommending of award of the Contract, the Bidder will enter into a Contract in accordance with the Bid, Drawings and Specifications.

8.02 The Bid Guaranty or Bid Bond provided in accordance with Paragraph 8.01 shall be returned to all unsuccessful Bidders immediately after the Contract is executed. The bid security of the

successful Bidder shall be returned upon filing of the requisite performance and payment bonds related to the Work.

8.03 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. If the successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 10 days after the Notice of Award, the Owner may annul the Notice of Award and the Bid security of the Bidder will be forfeited.

8.04 Bid guaranties shall be returned to all unsuccessful Bidders immediately after the Contract is executed.

ARTICLE 9 CONTRACT TIMES

9.01 The number of days within which, or the dates by which, milestones, if any, are to be achieved and the Work is to be substantially completed and ready for final payment are set forth in the Agreement (or incorporated therein by reference to the attached Bid Form).

ARTICLE 10 LIQUIDATED DAMAGES

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

ARTICLE 11 SUBSTITUTE AND “OR-EQUAL” ITEMS

11.01 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 12 SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 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 without an increase in the Bid.

12.02 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.

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

12.04 In contracts where the Contract Price is on the basis of cost-of-the-work plus a fee, the apparent successful Bidder, prior to the Notice of Award, shall identify in writing to Owner those portions of the work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the work with Owner's written consent.

ARTICLE 13 PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

13.02 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. Bidder shall not leave blanks or place a zero amount for any of the items.

13.03 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.

13.04 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.

13.05 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.

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

13.07 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.

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

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

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

13.11 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 14 BASIS OF BID; COMPARISON OF BIDS

14.01 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 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 15 SUBMITTAL OF BID

15.01 Bids will be received for all divisions of the Specifications and all other provisions of the Bidding Documents.

15.02 Bidder is furnished one copy of the Bidding Documents with one separate unbound copy of the Bid Forms and the Bid Bond. The unbound copy of the Bid Forms is to be completed and submitted with the Bid security along with any data required by the Bidding Documents to be attached to and made a condition of the Bid. Additional copies may be obtained from the Issuing Office.

15.03 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 place indicated in the Advertisement or Invitation to Bid. No relief will be provided for a mailed Bid not being received by the prescribed time. No Bid will be considered which is received after the time set for receiving Bids.

ARTICLE 16 MODIFICATION AND WITHDRAWAL OF BID

16.01 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 set for receiving Bids.

ARTICLE 17 OPENING OF BIDS

17.01 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 18 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 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 and return the Bid security prior to the end of this period.

ARTICLE 19 EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves without limitation the right to reject any or all Bids, to waive any and all informalities not involving price, time or changes in the work and to negotiate Contract terms with the Successful Bidder; and the right to accept or reject all incomplete nonconforming, nonresponsive, unbalanced, obscure, or conditional Bids, or Bids which contain additions not called for, erasures, alterations, or irregularities of any kind, or which do not comply with the Instructions to Bidders. Owner reserves the right to 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, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible.

19.02 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.

19.03 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.

19.04 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. Operating costs, maintenance considerations, performance guarantees of materials and equipment may also be considered by the Owner.

19.05 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 to Owner's satisfaction within the prescribed time. Bidder shall furnish to Owner all such information and data

for this purpose as Owner may request. Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy Owner that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the work contemplated therein.

19.06 Owner shall be satisfied that Bidder (1) maintains a permanent place of business, (2) has adequate plant and equipment to do the work properly and expeditiously, (3) has a suitable financial status to meet obligations incident to the work, (4) has appropriate technical experience, and (5) can submit a satisfactory performance record.

19.07 If the Contract is to be awarded, it will be awarded to the responsive and responsible Bidder with the lowest Bid whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project. Bid from the successful Bidder for the computed total base bid selected by Owner may not necessarily be lower in price than the bid or bids for other alternative combination.

19.08 The award and execution of a Contract shall be made within 60 days after the date on which the bids were opened, unless the time for awarding and executing the Contract is extended by mutual consent of Owner or its representatives and the Bidder whose Bid Owner accepts and with respect to whom Owner subsequently awards and executes a Contract.

ARTICLE 20 CONTRACT SECURITY AND INSURANCE

20.01 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 the required performance and payment bonds and insurances.

ARTICLE 21 SIGNING OF AGREEMENT

21.01 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 22 SALES AND USE TAXES

22.01 Owner is exempt from Ohio state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid.

22.02 The Bid shall include all taxes in effect at the time the Bid is submitted. Bidders what are uncertain as to what items are subject to tax, or who require further explanation or clarification, are requested to contact the State of Ohio Department of Taxation.

22.03 Refer to Paragraph SC-6.10 of the Supplementary Conditions for additional information.

ARTICLE 23 RETAINAGE

23.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 24 WAGE RATE DETERMINATION

24.01 A federal wage rate determination will be inserted as a part of the Bidding Documents and/or will be on file at the office of the Owner. Bidder shall inspect the wage rate determination and shall incorporate its requirements into its Bid. See the General Requirements for additional requirements.

ARTICLE 25 LAWS, ORDINANCES, AND REGULATIONS

25.01 Bidder must familiarize itself with all laws, ordinances, and regulations by federal, state, city, or other governmental agency, which by reason of being neglected or violated may affect the Work contemplated and must secure and pay the fee required for any permits which may be necessary unless such fees are otherwise indicated to be paid in the Bidding Documents.

ARTICLE 26 FINDINGS FOR RECOVERY

26.01 By submitting its bid, each Bidder certifies for reliance of the Owner that it has no unresolved finding for recovery against it issued by the Auditor of the State of Ohio on or after January 1, 2001, except as permitted by Section 9.24 (F) of the Ohio Revised Code.

ARTICLE 27 EEO REQUIREMENTS

27.01 Bidder shall abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the Equal Opportunity Clause set forth in the General Conditions.

ARTICLE 28 FUNDING

28.01 The Project to be constructed pursuant the Contract will be financed with assistance from the **Ohio Department of Development (ODOD)** through the Water and Wastewater Infrastructure Program. As such, it is subject to all applicable Federal and State laws and regulations as well as all specific program requirements outlined.

ARTICLE 29 REQUIRED BID RESPONSE

29.01 Bidders shall, at a minimum, submit the following documentation as a part of their Bid. Submissions not including one or more of these items may be deemed non-responsive.

Section 004100	Bid Form
Section 004115	Technical Proposal and Information
Section 004300	Bid Guaranty and Contract Bond (or alternate form of Bid Security in accordance with the Ohio Revised Code
Section 004450	Contractor Equal Employment Opportunity Certification Certification Regarding Debarment, Suspension, and Other Responsibility Matters American Iron and Steel Acknowledgement
Section 004513	Bidder's Qualifications
Section 004519	Non-Collusion Affidavit

Section 004533 Certification of Non-Segregated Facilities
Section 004547 Proposal Affidavit (applicable to corporations)

ARTICLE 30 OPINION OF PROBABLE COST

30.01 The opinion of probable cost related to the project reflected within the Specifications is \$175,000 as of Mach 28, 2024.

END OF SECTION

BID FORMS

The bid forms are not available online. The bid forms are available only by purchasing a set of plans and specifications at the location indicated in the Advertisement for Bids/Public Notice to Bidders.

SECTION 005100 - NOTICE OF AWARD

DATE: _____, 20_____

TO: _____
(Bidder)

ADDRESS: _____

PROJECT: _____

You are hereby notified that your Bid dated _____, 20___ for the above Contract has been considered. You are the apparent successful bidder and have been awarded a contract for the above named project.

The Contract Price of your contract is \$_____.

Three (3) copies of each of the proposed Contract Documents (except drawings) accompany this Notice of Award. Three (3) sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within **10 DAYS** of the date of this Notice of Award:

1. You must deliver to the Owner three (3) fully executed counterparts of the Agreement, including all the Contract Documents.
2. You must deliver with the executed Agreement, the Payment and Performance Bonds and the Insurance Certificate as specified in the Instructions to Bidders, The General Conditions (Article 5), and the Supplementary Conditions.

Failure to comply with these conditions within the time specified will entitle the Owner to consider your Bid abandoned, and to annul this Notice of Award, and to declare your Bid Security forfeited.

Within **10 DAYS** after you comply with the foregoing conditions, the Owner will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

OWNER: _____

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

(Bidder)

this _____ day of _____, 20_____

By _____

Title _____

Copy to Engineer.

END OF SECTION

SECTION 005200 - AGREEMENT

THIS AGREEMENT is by and between _____

(hereinafter all Owner) and _____

(hereinafter called 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:

The project generally consists of the replacement of existing residential and small commercial potable water meters, provision of meter interface equipment/software and related appurtenances.

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:

Village of Millersport
Water Meter Replacement and System Upgrade

ARTICLE 3 ENGINEER

3.01 The Project has been designed by CT Consultants, Inc. (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. Contract

1. The Work will be substantially completed within 240 calendar 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 14.07B of the General Conditions within 270 calendar 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 the following daily charge:

Original Contract Amount		Daily Charge / Calendar Day
<u>From More Than</u>	<u>To and Including</u>	
\$ 0	\$ 100,000	\$ 500
100,000	500,000	800
500,000	1,000,000	1,000
1,000,000	3,000,000	1,200
3,000,000	5,000,000	1,500
5,000,000		2,000

For each day that expires after the Dates specified in Paragraph 4.02, liquidated damages as indicated above per calendar day shall be paid by the Contractor to the Owner until the Date requirements are met.

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 as follows:

- A. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.
- B. All specific cash allowances are included in the Contract Price and have been computed in accordance with Paragraph 11.02 of the General Conditions.

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 as established at the preconstruction conference 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, Owner will retain an amount equal to 8% of each progress payment application until 50% of the Work has been completed. At 50% completion, further progress payment applications shall be paid in full to the Contractor and no additional amounts will be retained unless the Engineer certifies to the Owner that the job is not proceeding satisfactorily. Amounts previously retained shall not be paid to the Contractor until substantial completion of the Work. At 50% completion of the Work, or any time thereafter when the character and progress of the Work is not satisfactory to Owner on the recommendation of Engineer, additional amounts may be retained, but in no event shall the total retainage be more than 8% of the value of the Work completed.

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 98% 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 Material Stored on Site

A. Payment for material and equipment delivered and not incorporated shall be at the rate of 92% of the invoice value of such material. The balance of such invoiced value shall be paid when such material is incorporated into and becomes a part of the work completed to date. Such material compensated in this manner shall become the property of the Owner under the Contract while it remains in storage, but if such material is stolen, destroyed, or damaged by casualty before being used, Contractor shall replace it at his own expense.

6.04 Escrow of Retainage

A. Upon completion of 50% of the Contract, as evidenced by the payments of at least 50% of the value of the Contract to Contractor, monies held in retainage shall be placed in an escrow account in accordance with Chapter 153 of the Ohio Revised Code.

6.05 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 HIERARCHY

7.01 In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

- First: Written Amendments
- Second: Agreement

Third:	Change Orders
Fourth:	Addenda
Fifth:	Supplementary Conditions
Sixth:	General Conditions
Seventh:	Specifications
Eighth:	Drawings

Figure dimensions (numerical) on Drawings shall take precedence over dimensions measured utilizing a scale.

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 (page 005200-1 to _____, inclusive).
2. Bid Guaranty and Contract Bond (pages 004300-1 to _____, inclusive).
3. Contract Bond (pages _____ to _____, inclusive).
4. Other bonds
 - a. _____ (page _____ to _____, inclusive).
 - b. _____ (page _____ to _____, inclusive).
 - c. _____ (page _____ to _____, inclusive).
5. General Conditions (pages 007000-1 to _____, inclusive).
6. Supplementary Conditions (pages 008000-1 to _____, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. Drawings _____

inclusive incorporated herein by reference with each sheet bearing the following general title:

9. Addenda (_____).

10. Exhibits to this Agreement (enumerated as follows):

- a. Notice to Proceed (pages 005500-1 to 005500-1, inclusive);
- b. Contractor's Bid (pages 004100-1 to _____, inclusive);
- c. Supplemental Unit Prices are included as part of the Agreement except as noted:

(_____);
- d. Delinquent Personal Property Tax Affidavit;
- e. Evidence of Contract Bond
(letter dated _____ attached);
- f. Documentation submitted by Contractor prior to Notice of Award

(_____);
- g. (_____);

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

- a. Work Change Directives;
- b. Change Order(s).

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 triplicate. One counterpart each has been delivered to Owner, Contractor, and Engineer. All portions of the Contract Documents have been signed or identified by Owner and Contractor or identified by Engineer on their behalf.

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

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Name: _____

Name: _____

Address: _____

Address: _____

City, State, Zip _____

City, State, Zip _____

Phone: _____

Phone: _____

Fax No.: _____

Fax No.: _____

E-mail: _____

E-mail: _____

Designated
Representative: _____

Designated
Representative: _____

License No.: _____
(Where applicable)

Agent for Service of Process:

INSTRUCTIONS FOR EXECUTING AGREEMENT

The full name and business address of CONTRACTOR should be inserted and the Agreement should be signed with CONTRACTOR'S official signature. Please have the name of the signing party printed under all signatures to the Agreement.

If CONTRACTOR is operating as a partnership, each partner should sign the Agreement. If the Agreement is not signed by each partner, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such Agreement for and in behalf of the partnership.

If the CONTRACTOR is an individual, the trade name (if CONTRACTOR is operating under a trade name) should be indicated in the Agreement and the Agreement should be signed by such individual. If signed by other than CONTRACTOR, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's authority to sign such Agreement for and in behalf of CONTRACTOR.

If CONTRACTOR is a corporation, the following certificate should be executed:

I, _____, certify that I am the _____ of the corporation named as CONTRACTOR herein above; that _____ who signed the foregoing agreement on behalf of CONTRACTOR was then _____ of said corporation; that said Agreement was duly signed for and in behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

CORPORATE SEAL

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows:

I have examined the attached contract(s) and bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements are adequate and have/has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions, and provisions thereof.

CERTIFICATE OF OWNER'S FISCAL OFFICER

I, the undersigned, _____, the duly authorized and acting fiscal representative of _____, do hereby certify as follows:

that the amount required to meet the above obligation has been lawfully appropriated for such purpose and is in the treasury or in process of collection to the credit of an appropriate fund free from any previous encumbrances.

END OF SECTION

SECTION 005400 - DELINQUENT PERSONAL PROPERTY STATEMENT

Name of Bidder: _____

Address: _____

Having been awarded a contract by the Village of South Solon, Ohio, hereby affirms under oath, pursuant to the Ohio Revised Code Section 5719.042 that at the time this bid was submitted, my company (was) (was not) charged with delinquent personal property taxes on the general tax list of personal property for Madison County, Ohio.

If such charge for delinquent personal property tax exists on the general tax list of personal property of Madison County, Ohio the amount of such due and unpaid delinquent taxes, including due and unpaid penalties and interest shall be set forth below.

A copy of this statement shall be transmitted by the Bidder to the county treasurer within thirty days of the date it is submitted. A copy of this statement shall also be incorporated into the contract made between the Village of South Solon, Ohio and _____ (Name of Bidder) and no payment with respect to any contract shall be made unless such a statement has been so incorporated as a part thereof.

Delinquent Personal Property Tax: \$ _____

Penalties: \$ _____

Interest: \$ _____

Bidder: _____

By: _____

Title: _____

Subscribed in my presence, and sworn to me this _____ day of

_____, 20____.

NOTARY PUBLIC

[SEAL]

Ohio Revised Code Section 5719.042

After the award by a taxing district of any contract let by competitive bid and prior to the time the contract is entered into, the person making a bid shall submit to the district's fiscal officer a statement affirmed under oath that the person with whom the contract is to be made was not charged at the time the bid was submitted with any delinquent personal property taxes on the general tax list of personal property of any county in which the taxing district has territory or that such person was charged with delinquent personal property taxes on any such tax list, in which case the statement shall also set forth the amount of such due and unpaid delinquent taxes and any due and unpaid penalties and interest thereon.

If the statement indicates that the taxpayer was charged with any such taxes, all of the following apply:

- (A) The fiscal officer shall transmit a copy of the statement to the county treasurer within thirty days of the date it is submitted.
- (B) A copy of that statement shall be incorporated into the contract.
- (C) No payment shall be made with respect to any contract to which this section applies unless that statement has been incorporated as required under division (B) of this section.

Amended by 131st General Assembly File No. TBD, HB 166, §1, eff. 9/8/2016.

Effective Date: 09-21-1982.

END OF SECTION

SECTION 005500 - NOTICE TO PROCEED

TO: _____

ADDRESS: _____

PROJECT: _____

CONTRACT NO: _____

CONTRACT FOR: _____

You are hereby notified that the Contract Time under the above Contract will commence to run on: _____, 20__. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the provisions in the Contract Agreement., Section 3.1 the Date of Substantial Completion is: ___ calendar days after the date of commencement of the Work specified above, or not later than _____, 20__.

Section 4.03 of the Agreement provides for an assessment of liquidated damages for each and every calendar day after the above established contract completion date that the Work remains incomplete.

Before you start any Work at the site, Paragraph 3.03.A.1 of the General Conditions provides that you must study the Contract Documents and verify figures and field dimension, and must report any observed errors or discrepancies and/or any concerns at this time.

Also, before you may start any Work at the site, you must:

1. Submit to the Engineer the Proposed Schedule called for in Section 013216.

OWNER:

By: _____ Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

_____, this _____ day of _____, 20__.

By: _____ Title: _____
(Contractor's Representative)

Copy to Engineer

END OF SECTION

Signed and sealed this _____ day of _____, 20__.

(PRINCIPAL)

(SURETY)

By: _____

By: _____

Printed Name & Title: _____

Printed Name & Title: _____

Surety's Address: _____

Surety's Telephone Number: _____

Surety's Fax Number: _____

NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

Contractor's Application For Payment No. _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

APPLICATION FOR PAYMENT

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE	\$	
2. Net change by Change Orders	\$	
3. CURRENT CONTRACT PRICE (Line 1 ± 2).....	\$	
4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)	\$	
5. RETAINAGE:		
a. ____ % x \$ _____ Work Completed	\$	
b. ____ % x \$ _____ Stored Material	\$	
c. Total Retainage (Line 5a + Line 5b)	\$	
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c).....	\$	
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)	\$	
8. AMOUNT DUE THIS APPLICATION	\$	
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)	\$	

CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:
-----	-------

Payment of:	\$ _____	(Line 8 or other - attach explanation of other amount)
is recommended by:	_____	_____ (Date)
	(Engineer)	
Payment of:	\$ _____	(Line 8 or other - attach explanation of other amount)
is approved by:	_____	_____ (Date)
	(Owner)	
Approved by:	_____	_____ (Date)
	Funding Agency (if applicable)	

Progress Estimate

Contractor's Application

For (contract):						Application Number:					
Application Period:						Application Date:					
A				B	C	D	E	F		G	
Bid Item No.	Description		Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (E) B	Balance to Finish (B - F)
	Totals										

Stored Material Summary

Contractor's Application

For (contract):					Application Number:				
Application Period:					Application Date:				
A	B	C	D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining in Storage (\$) (D + E - F)
			Date (Month/Year)	Amount (\$)	Amount (\$)	Subtotal	Date (Month/Year)	Amount (\$)	
		Totals							

SECTION 006516 - CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT TITLE: _____

LOCATION: _____

OWNER: _____

DATE OF SUBSTANTIAL COMPLETION: _____

The undersigned CONTRACTOR hereby certifies that all work included in the above-captioned contract has been substantially completed in accordance with the requirements of the CONTRACT DOCUMENTS including approved modifications thereto, and requests that the work be accepted so that the Owner can occupy or utilize the Work for its intended use.

A list of items (Punch List) to be completed or corrected shall be completed and attached by the Engineer. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the requirements of the CONTRACT DOCUMENTS including approved modifications thereto. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the Certificate of Final Completion or the date of final payment.

I understand that neither the determination by the ENGINEER that the work is completed, nor the acceptance thereof by the Owner, shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

CONTRACTOR

SIGNATURE

TITLE

DATE

The undersigned ENGINEER has inspected the work included in the above-captioned contract, finds it to have been substantially completed in accordance with the requirements of the CONTRACT DOCUMENTS including approved modifications thereto. A list of items (Punch List) to be completed or corrected by the Contractor prior to final payment is attached.

ENGINEER

SIGNATURE

TITLE

DATE

Upon the above representation of the CONTRACTOR and the above recommendation of the ENGINEER, the undersigned hereby accepts the work included in the above-captioned contract.

OWNER

SIGNATURE

TITLE

DATE

END OF SECTION

SECTION 006519 - CERTIFICATE OF FINAL COMPLETION

PROJECT TITLE: _____

LOCATION: _____

OWNER: _____

DATE OF CONTRACT COMPLETION: _____

The undersigned CONTRACTOR hereby certifies that all work included in the above-captioned contract has been completed in accordance with the requirements of the CONTRACT DOCUMENTS including approved modifications thereto, and requests that the work be accepted.

I understand that neither the determination by the ENGINEER that the work is completed, nor the acceptance thereof by the Owner, shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the contract document

CONTRACTOR

SIGNATURE

TITLE

DATE

The undersigned ENGINEER has inspected the work included in the above-captioned contract, finds it to have been completed in accordance with the requirements of the CONTRACT DOCUMENTS including approved modifications thereto, and accordingly recommends that the work be accepted.

ENGINEER

SIGNATURE

TITLE

DATE

Upon the above representation of the CONTRACTOR and the above recommendation of the ENGINEER, the undersigned hereby accepts the work included in the above-captioned contract.

OWNER

SIGNATURE

TITLE

DATE

END OF SECTION

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 Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

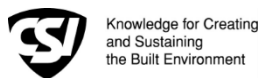
AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by



The Associated General Contractors of America



Construction Specifications Institute

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1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 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 EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

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's 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.A 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. The General Requirements pertain to all sections 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 in connection with the Work.

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. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *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.

39. *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.

40. *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.

41. *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.

42. *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.

43. *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.

44. *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.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *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 any Subcontractor.

49. *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.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *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.

52. *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 following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following 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 requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 which 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*

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.

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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended 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, or Engineer, or any of, their Related Entities, 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 may discover 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 any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, 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 knew or reasonably should have known 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, code, or instruction (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 or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, 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 Engineer's consultants, including electronic media editions; or

2. reuse any of 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 prohibition 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. Copies of data furnished by Owner or Engineer to Contractor or 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 of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or

contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general 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 Related Entities 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 at or contiguous to the Site 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, Owner and Engineer, and any of their Related Entities 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.

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; 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:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general 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 Related Entities 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.

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 to Contractor written notice: (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, 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, 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 current 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 must be accompanied by a certified copy of the agent's authority to act.

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 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 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.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other 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, include as additional insured (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, 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 completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. 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);

6. 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

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. 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, 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 an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, 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 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 additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery 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, 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 an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with 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 additional insured 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 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 to be listed as insureds or additional insureds (and the officers, directors, 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 additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, 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 to be listed as insured or additional insured (and the officers, directors, 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, 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, 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 insureds, 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. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

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,

3) it has a proven record of performance and availability of responsive service; and

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 that 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 in 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 or not 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 or not 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;

4) and 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 either a Change Order for a substitute or 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 item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the 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 anything in the Contract Documents 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 an additional insured 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, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, 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, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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 primary 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, 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. 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. 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 , 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).

D. 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 acceptable 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*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

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 determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques,

sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have 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.

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 Drawing's 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 Related Entities 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, 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 respective consultants, agents, officers, directors, partners, or employees 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, 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 via 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, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall 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 their work and will only cut or alter their 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 actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's 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 in respect of 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 in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect of 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 in 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. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

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 and will not be changed without written consent of Owner and Engineer.

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 believe 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.

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.B.

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 notice 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) is required by the provisions of any bond to be given to a surety, 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 Time 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 include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

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 at the Site. 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, 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, expresses, 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 and 11.01.B.

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 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 Paragraph 12.01.C.2.a 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 the Related Entities of each of them 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. All 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, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site 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 said 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, it must, if requested by Engineer, be uncovered 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 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 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 on the Site 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to 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. that 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 corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined 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.

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 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 will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion 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.7;
- 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 or Owner's property might in any way be responsible 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 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 their 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.

SECTION 008000 - SUPPLEMENTARY CONDITIONS

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 General Conditions have the meanings stated below which are applicable to both the singular and plural thereof.

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“under the Contract Documents”

SC-2.01.B Delete Paragraph 2.01.B of the General Conditions in its entirety and insert the following in its place:

Evidence of Insurance: Before any Work at the Site is started, Contractor shall deliver to the Owner with copies to each additional insured identified in the General Conditions Owner-approved copies of certificates of insurance, copies of endorsements, and other evidence of insurance which either of them or any additional insured may reasonably request, which Contractor is required to purchase and maintain in accordance with Article 5.

SC-2.02 Copies of Documents

SC-2.02.A Delete Paragraph 2.02.A to the General Conditions in its entirety and insert the following in its place:

OWNER shall furnish to CONTRACTOR up to three (3) copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

SC-2.05 Before Starting Construction

SC-2.05.A.2 Add to Paragraph 2.05.A.3 of the General Conditions, the following:

The total of the schedule of values prepared for the Work, as required by the General Conditions, shall not exceed the Bid submitted for the Work, unless such amount is adjusted as provided in the Contract Documents.

SC-2.07 Initial Acceptance of Schedules

SC-2.07.A Insert in the last sentence, after the phrase “to Engineer”, the following:

“and Owner”

SC-2.07.A.3 Add to Paragraph 2.07.A.3 of the General Conditions, the following:

Once approved by the Engineer, the Contractor will not change the allocation of the Contract Price to the component parts of the Work without the Engineer’s written approval. The Engineer thereafter may from time to time require the Contractor to adjust such schedule if the Engineer determines it to be in any way unreasonable or inaccurate. The Contractor then shall adjust the schedule of values as required by the Engineer within ten (10) days.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.03 Reporting and Resolving Discrepancies

SC-3.03.A.1 Insert in the first sentence of Paragraph 3.03.A.1 of the General Conditions before the phrase “Before undertaking” the following phrase:

“In addition to its obligations under the Instructions to Bidders,”

SC-3.03.A.3 Add the following language at the end of Paragraph 3.03.A.3 of the General Conditions:

“or Contractor failed to perform its obligations under the Instructions to Bidders.”

SC-3.03.A Add the following language at the end of Paragraph 3.03.A of the General Conditions:

4. In addition to its obligations under the Instructions to Bidders, if Contractor proceeds with work that Contractor had actual knowledge or should have known that a conflict, error, ambiguity, or discrepancy existed as indicated above, correction of work constructed without such notification to Engineer shall be at Contractor's expense, (except in an emergency as authorized by Paragraph 6.16.A.).

SC-3.03.B.1 Add the following language at the end of Paragraph 3.03.B.1 of the General Conditions:

2. Within the Contract Documents, requirements of the Agreement shall take precedence over the General Conditions, which shall take precedence over the Specifications, which shall take precedence over the Drawings.

3. Within a particular Contract Document, figure dimensions on Drawings shall take precedence over general Drawings. Specific instructions or specifications shall take precedence over general instructions or specifications.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

SC-4.01 Availability of Lands

SC-4.01.B Delete Paragraph 4.01.B to the General Conditions in its entirety and insert the following in its place:

Upon reasonable request, Owner shall furnish Contractor with a Notice of Commencement prepared for the Project, conforming to the provisions of Ohio Revised Code Section 1311.252.

SC-4.02 Subsurface and Physical Conditions

SC-4.02.A Add the following language at the end of Paragraph 4.02.A of the General Conditions:

3. In the preparation of Drawings and Specifications, ENGINEER has relied upon the reports of physical conditions of the site of the Work as identified in Specification Section 00300 – Information Available to Bidders.

SC-4.03 Differing Subsurface and Physical Conditions

SC-4.03.A.4 Insert in the first sentence of Paragraph 4.03.A of the General Conditions after the phrase “the Contractor” the following phrase:

“as a condition precedent to any increase in the Contract Price and/or an extension of the Contract Times”

Delete the word “promptly” in the second phrase following Paragraph 4.03.A.4 of the General Conditions and insert the following in its place:

“within 48 hours”

SC-4.04 Underground Facilities

SC-4.04.A.2.b Delete Paragraph 4.04.A.2.b of the General Conditions in its entirety and insert the following in its place:

The Contractor shall be responsible for protecting all Underground Facilities in a manner at least as cautious and protective of safety and of underground facilities as those methods identified in Ohio Revised Code Sections 3781.25 and 3781.30.

SC-4.05 Reference Points

SC-4.05 Add the following language at the end of Paragraph 4.05 of the General Conditions:

Contractor is referred to the General Requirements for additional requirements for laying out the work.

SC-4.06 Hazardous Environmental Condition at Site

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

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

B. Not Used.

ARTICLE 5 – BONDS AND INSURANCE

SC-5.01 Performance, Payment; and Other Bonds

SC-5.01. A Delete Paragraph 5.01.A of the General Conditions in its entirety and insert the following in its place:

Contractor shall furnish a Contract Bond in the amount of the Contract Price as security for the faithful performance and payment of all of Contractor’s obligations under the Contract Documents. Such bond shall be in the form that meets the requirements of the Ohio Revised Code. If the Contractor submitted a combined Bid Guaranty and Contract Bond with its bid for the Work, that form of Bond shall satisfy the Contractor’s requirement to provide a Contract Bond. Contractor shall also furnish any other bonds as are required

by the Contract Documents.

SC-5.01.B Insert in the first sentence of Paragraph 5.01.B of the General Conditions after the phrase “U.S. Department of the Treasury” the following phrase:

“and meet the other requirements of the Contract Documents”

SC-5.03 Certificates of Insurance

SC-5.03.A Delete Paragraph 5.03.A of the General Conditions in its entirety and insert the following in its place:

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

SC-5.03 Add the following language immediately after Paragraph 5.03.B of the General Conditions:

C. Failure of Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

SC-5.04 Contractor's Liability Insurance

SC-5.04.B.1 Delete the phrase “subject to any customary exclusion regarding professional liability” from the first sentence of Paragraph 5.04.B.1

SC-5.04.B.3 Amend in Paragraph 5.04.B.3 of the General Conditions the phrase “completed operations insurance” to read “products and completed operations insurance”.

SC-5.04.B.5 Amend in Paragraph 5.04.B.5 of the General Conditions the phrase “materially changed” to read “materially changed with respect to coverage on the Project”.

SC-5.04.B.7 Amend in Paragraph 5.04.B.7 of the General Conditions the phrase “completed operations insurance” to read “products and completed operations insurance”.

SC-5.04 Add the following new paragraphs immediately after Paragraph 5.04.B.

C. The limits of liability for the insurances required by paragraph 5.04 of the

General Conditions shall provide coverage for not less than the following amounts or greater where required by Law or Regulations. The types of insurance and the limits of liability indicated are the minimum required. Neither the Owner nor the Engineer warrant the adequacy of the types of insurance or the limits of liability required. Any policy exclusions shall be indicated on the insurance certificate. Insurance shall be provided on an occurrence form basis. Contractor shall provide verification of all coverage with or on the insurance certificate.

1. Worker's Compensation and related coverage under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

- a. State of Ohio: Statutory
- b. Employer's Liability:
 - Bodily Injury by Accident:
 - Each Accident \$ 1,000,000
 - Bodily Injury by Disease:
 - Each Employee \$ 1,000,000
 - Policy Limit \$ 1,000,000

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall be written on a commercial general liability form and which shall include completed operations insurance and product liability coverage and eliminate the exclusion with respect to property under the care, custody and control of the Contractor:

- a. Policy Limits:
 - 1) General Aggregate \$ 2,000,000
 - 2) Products – Completed Operations Aggregate \$ 1,000,000
 - 3) Personal and Advertising Injury \$ 2,000,000
 - 4) Each Occurrence (Bodily Injury and Property Damage) \$ 1,000,000
 - 5) Fire Damage (any one fire) \$ 1,000,000
 - 6) Medical Expense (any one person) \$ 10,000

b. Policy shall include as a minimum the following coverage:

- 1) Broad Form Property Damage Coverage.
- 2) An elimination of the exclusions with respect to property under the care, custody, or control of the Contractor. In lieu of

elimination of the exclusion, the Contractor may provide Builder's Risk or Installation floater coverage for property under the care, custody, or control of the Contractor.

- 3) Explosion, Collapse, and Underground coverage applicable under Property Damage Liability Insurance.
 - 4) Contractual Liability Coverage.
 - 5) Independent Contractor Coverage.
 - 6) Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
3. Comprehensive Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury:

Each person	\$ 500,000
Each Accident	\$ 1,000,000

b. Property Damage:

Each Accident	\$ 500,000
---------------	------------

4. Umbrella Coverage:

a. Umbrella policy (pay on behalf form) with limits of \$2,000,000 for bodily injury, personal injury and property damage on a combined basis shall be provided with the stated underlying limits of Paragraphs 5.04.C.1, 5.04.C.2, and 5.04.C.3.

b. Policy shall include the Owner, the Engineer and any others required by Paragraph 5.04.B.1 of the General Conditions as additional insureds.

D. Insurance certificates for commercial general, automobile, umbrella, and builder's risk shall specifically indicate by name the additional insureds which are to include the Owner, the Engineer as well as any other persons or entities so identified. Certificates shall be Acord 25-S or equivalent.

E. The following provisions shall also apply to the insurance provided by the Contractor:

1. Contractor's insurance shall be primary and non-contributory.
2. Insurance policies shall be written on an occurrence basis only.
3. The Contractor shall require all Subcontractors to provide Workers' Compensation, CGL, and Automobile Liability Insurance with the same minimum limits specified herein, unless the Owner agrees to a lesser

amount.

4. Owner shall be named as a certificate holder on the policies of insurance maintained by Contractor. The Contractor shall provide each additional insured with a certificate of insurance.

SC-5.06 Property Insurance

SC-5.06.A Delete Paragraph 5.06.A in its entirety and insert the following:

A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of full replacement cost thereof. Insurance shall be completed value form.

1. This insurance shall:

a. include the interests of Owner, Contractor, Subcontractors, Engineer, and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured (Insurance certificates shall specifically indicate by name the additional insureds which are to include Owner and Engineer as well as other individuals or entities so identified.);

b. be written on a Builder's Risk "all-risk" form that shall at least include insurance for physical loss and 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 (including that caused by flood or hydrostatic pressure), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

c. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

d. cover the total value of materials and equipment supplied under the Contract from the time Contractor takes possession of them until they are installed and tested by Contractor and the project is accepted as complete by Owner under an endorsement to this policy or in the form of Installation Floater Insurance of the "all risk" type;

e. allow for partial utilization of the Work by Owner;

f. include testing and startup; and

g. 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 additional insured to whom a certificate of insurance has been issued.

2. Contractor shall be responsible for any deductible or self-insured retention.
3. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Paragraph 5.06.A and shall comply with the requirements of Paragraph 5.06.C of the General Conditions.

SC-5.06.B Delete Paragraph 5.06.B of the General Conditions in its entirety.

SC-5.06.D Delete the first sentence of Paragraph 5.06.D of the General Conditions and insert the following in its place:

The Contractor shall pay all deductible provisions of insurances. The maximum deductible shall be \$5,000.

SC-5.06.E Delete Paragraph 5.06.E of the General Conditions in its entirety.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

SC-6.02 Labor; Working Hours

SC-6.02.B Insert in the second sentence of Paragraph 6.02.B of the General Conditions before the phrase “or any legal holiday” the following phrase:

“shut down dates as defined in the Agreement,”

SC-6.02 Add the following new paragraph immediately after Paragraph 6.02.B.

C. Costs incurred by the Owner related to inspection of Work performed by the Contractor, at the Contractor’s discretion, outside of regular working hours and not approved, in writing, by the Owner, shall be the responsibility of the Contractor. The Owner may deduct these costs from the periodic and final payment requests submitted by the Contractor.

SC-6.03 Services, Materials, and Equipment

SC-6.03.B Add the following to the end of Paragraph 6.03.B of the General Conditions.

Contractor and Supplier warrant that all materials and equipment are suitable and fit for the intended use of such materials and equipment and are free from defects in material, workmanship or design. The foregoing applies whether the materials or equipment are specified in the Contract Documents.

SC-6.06 Concerning Subcontractors, Suppliers, and Others

SC-6.06.A Add the following to the end of Paragraph 6.06.A of the General Conditions.

If Owner or Engineer after due investigations has reasonable objections to any proposed Subcontractor, Supplier, or other individual or entity, either may

request Contractor submit an acceptable substitute without an increase in Contract Price.

SC-6.06 Add the following new paragraph immediately after Paragraph 6.06.G.

F. The Owner or the Engineer may furnish to any Subcontractor or Supplier to the extent practicable, information about amounts paid to the Contractor on account of Work performed for the Contractor by a particular Subcontractor or Supplier.

SC-6.08 Permits

SC-6.08 Add the following new paragraph immediately after Paragraph 6.08.A.

B. Refer to the General Requirements for additional permit information.

SC-6.10 Taxes

SC-6.10 Add the following new paragraphs immediately after Paragraph 6.10.A.

B. Materials purchased for use or consumption in connection with the proposed Work will be exempt from the State of Ohio Sales Tax, as provided in Section 5739.02 of the Ohio Revised Code, and also from the State of Ohio Use Tax, as provided in Section 5741.01 of the Ohio Revised Code. The Owner will provide the Contractor with a Construction Tax Exempt Certificate upon request, made through the Engineer.

C. Purchases by the Contractor of expendable items, such as form lumber, tools, oil, greases, fuel, or equipment rentals, are subject to the application of Ohio Sales or Use Taxes.

SC-6.12 Record Documents

SC-6.12.A Delete the last sentence of Paragraph 6.12.A of the General Conditions and insert the following in its place:

The Contractor shall deliver these record documents, samples, and shop drawings to the Engineer, no later than the date for Substantial Completion, for the Engineer's review and transmittal to the Owner.

SC-6.14 Safety Representative

SC-6.14 Add the following new paragraph immediately after Paragraph 6.14.A.

B. Contractor shall keep at the Site at all times during the progress of the Work a competent person to comply with OSHA trenching and excavation requirements. The competent person shall be one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

SC-6.20 Indemnification

SC-6.20.A Delete Paragraph 6.20.A in its entirety and insert the following:

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify, defend and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, (whether alleged or proven), demands, 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 Work or any breach of Contractor's obligations under the Contract Documents, including but not limited to the breach of any warranty provided in the Contract Documents. The Contractor's obligations under this Paragraph 6.20.A are joint and several.

SC-6.20.C Delete Paragraph 6.20.C of the General Conditions in its entirety, including Paragraph 6.20.C.1 and Paragraph 6.20.C.2.

ARTICLE 7 – OTHER WORK AT THE SITE

SC-7.04 *Claims by Other Contractors*

SC-7.04 Add the following new paragraph immediately after Paragraph 7.03.

7.04 *Claims by Other Contractors*

A. Should Contractor cause damage to the work or property of any separate contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Contractor shall promptly attempt to settle with such other contractor by agreement or to otherwise resolve the dispute by arbitration or at law.

B. Should Contractor cause damage to the work or property of any separate contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Owner or Engineer, Contractor shall indemnify Owner and Engineer as required under Paragraph 6.20.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.03 *Project Representative*

SC-9.03 Add the following new paragraph immediately after Paragraph 9.03.A.

B. Resident Project Representative personnel on this project may include personnel furnished by Owner, Engineer, or both. The duties and responsibilities of the Resident Project Representative(s) include the following:

1. Review schedules as required in Paragraph 2.05.A of the General Conditions and amendment thereto.

2. Attend conferences and meetings with Contractor.
3. Serve as liaison between Engineer and Contractor and help Engineer serve as liaison between Owner and Contractor.
4. Conduct on-site observation of the work.
5. Observe tests, equipment, and system startups.
6. Report to Engineer when clarifications and interpretations of the Contract Documents are needed. Consider, evaluate, and report to Engineer, Contractor's requests for modification.
7. Maintain orderly records, keep a daily log (when on a part-time basis, keep log for days visiting site), and furnish periodic reports to Engineer of the progress of the Work.
8. Before project completion, prepare final list of items to be completed or corrected and make recommendations to Engineer concerning acceptance of the Work.
9. Review Payment Applications from Contractor.

The Resident Project Representatives shall not:

1. Authorize any deviation from the Contract Documents or substitutions of materials or equipment.
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractor, or Contractor's superintendent.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction.
5. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.
6. Accept shop drawing or sample submittals from anyone other than Contractor.
7. Authorize Owner to occupy the Project in whole or in part.
8. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.
9. Offer interpretation of the Contracts Documents without consultation with and direction from the Engineer.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

SC-10.05 Claims

SC-10.05.B Add the following to the end of Paragraph 10.05.B of the General Conditions.

The Contractor acknowledges and agrees that the Owner and/or parties in privity of contract with the Owner may delay, interfere with and/or disrupt the Contractor's Work, and such actions shall not constitute a breach of contract by the Owner, since the Contractor is entitled to additional compensation by properly pursuing a Claim as permitted by these Modified General Conditions. Pending the final resolution of a Claim, the Contractor shall continue performance of the Work.

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

SC-11.03 Unit Price Work

SC-11.03.D Delete Paragraph 11.03.D in its entirety and insert the following:

D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. If the total unit cost of a particular item of Unit Price Work amounts to 15% or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by the Contractor differs by more than 25% from the estimated quantity of such item indicated in the Agreement; and
2. If there is no corresponding adjustment with respect to any other item of Work; and
3. If the Contractor believes that it has incurred additional expense as a result thereof; or
4. If the Owner believes that the quantity variation entitles it to an adjustment in unit price,

either the Owner or the Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

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

SC-12.03 Delays

SC-12.03.A Add the following language at the end of Paragraph 12.03.A of the General Conditions:

Abnormal weather conditions shall be defined as conditions related to temperature and precipitation not reasonably anticipatable for the region. The

following chart defines the number of days of inclement weather deemed normal for the project area. Conditions beyond the given limits are deemed abnormal.

Month	Days with 0.10 inch Precipitation, or more	Days with 32 Degrees F, or less
January	14	26
February	12	23
March	14	20
April	14	6
May	13	0
June	12	0
July	11	0
August	9	0
September	8	0
October	8	3
November	11	15
December	12	24

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

SC-13.03 Tests and Inspections

SC-13.03.A Add the following language at the beginning of Paragraph 13.03.A of the General Conditions:

All Work is subject to testing to indicate compliance with Contract Document requirements. Duplicate copies of test results of all tests required shall be submitted to Engineer. Testing laboratories are subject to the approval of Engineer. Tests and inspection of work may be conducted by Owner or an independent laboratory employed by Owner. Tests may also be performed in the field by Engineer as a basis for acceptance of the Work.

Add the following language at the end of Paragraph 13.03.A of the General Conditions:

Samples required for testing shall be furnished by Contractor at no cost to Owner. In the event that completed Work does not conform to specification

requirements during the initial test, the Work shall be corrected and retested for conformance. The entire cost of retesting completed Work shall be borne by Contractor. This shall include the extra cost for inspection to Owner which will be deducted from the final amount due Contractor.

SC-13.09 Owner May Correct Defective Work

SC-13.09.A Delete Paragraph 13.09.A in its entirety and insert the following:

If Contractor fails within two (2) business days of a written notice from the Owner or Engineer, or such longer time as may be stated in such notice, to correct, or take reasonable steps to commence to correct, defective Work or to remove and replace, or take reasonable steps 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 correct or remedy any such deficiency. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor all the 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. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. The Contractor irrevocably designates the Owner as the Contractor's attorney-in-fact to execute the Change Orders provided for in this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 Progress Payments

SC-14.02.A.1 Insert after the first sentence of Paragraph 14.02.A.1 of the General Conditions the following sentence:

The Application for Payment shall be in the form and submitted in the number of copies (with all related documents), as required by the Contract Documents.

SC-14.02.A.1 Add the following new paragraphs immediately after Paragraph 14.02.A.3.

4. Contractor shall submit on 8-1/2 by 11 paper each lien waiver submitted. The lien waiver shall be submitted in the same number or copies as the Application for Payment. The copies of the lien waiver submitted shall include at least one original.

5. No advanced payment for shop drawing preparation will be made. Shop drawing costs will be paid when equipment and materials are delivered and suitably stored on the site.

6. All stored equipment and materials for which payment is requested

shall have invoices included with the Application for Payment. Equipment shall be identified thoroughly on the invoices, including serial numbers. The invoices shall be submitted in the same number or copies as the Application for Payment.

7. Payment for the stored equipment and material which are on the site shall not exceed the invoiced amount for each item, less the Contract retainage. The overhead and profit for the stored items shall not be invoiced until the item is installed.

8. Payment for off-site storage is normally reserved for sensitive or very large pieces of equipment that in Engineer's opinion would not be practical to have stored on the site. Payment for off-site stored items shall be limited to 75% of the invoiced value of the item, less Contract retainage. Contractor shall reimburse Owner the Cost of inspecting off-site stored items. When off-site storage is approved, Contractor shall provide Insurance Certificates and Document of Ownership to Owner.

SC-14.02.C.1 Delete the word "Ten" in the first sentence of Paragraph 14.02.C.1 of the General Conditions and insert the following in its place:

"Thirty"

SC-14.04 Substantial Completion

SC-14.04 Add the following new paragraphs immediately after Paragraph 14.04.D.

E. The Contractor's warranties under the Contract Documents shall remain in full force and effect and cover any remedial Work, even if performed by others.

F. If more than one inspection by the Engineer for purposes of evaluating corrected Work is required, the inspections will be performed at the Contractor's expense.

SC-14.06 Final Inspection

SC-14.06 Add the following new paragraph immediately after Paragraph 14.06.A.

B. The ENGINEER will conduct one (1) inspection for the final payment application review when requested to by the CONTRACTOR. If the ENGINEER determines that the contract is not complete in accordance with the approved contract documents the CONTRACTOR will be assessed for each additional inspection.

END OF SECTION

SECTION 008800 - PREVAILING WAGE REQUIREMENTS

ARTICLE 1 GENERAL

1.01 The Contractor and all Subcontractors shall pay employees at a rate not less than the minimum wages specified in the current wage determination in accordance with the Davis-Bacon Act.

1.02 A copy of the wage determination current at the time of Bid has been included for reference.

ARTICLE 2 LABOR STANDARDS PROVISIONS

2.01 This project is funded in part by the Water and Wastewater Infrastructure Program administered by the Ohio Department of Development. Contractors shall comply with the **Federal Labor Standards Provisions** as outlined in the Project Manual.

2.02 The Federal Labor Standards included in the Project Manual apply to any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with the guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in §29 CFR 5.1.

2.03 As outlined in the Federal Labor Standards Provisions, “subrecipient” means the **Village of South Solon**.

ARTICLE 3 CONTRACT WORK HOURS AND SAFETY STANDARDS PROVISIONS

3.01 This project is funded in part by the Water and Wastewater Infrastructure Program administered by the Ohio Department of Development. Contractors shall comply with the **Contract Work Hours and Safety Standards Act** as outlined in the Project Manual.

3.02 The Contract Work Hours and Safety Standards Act included in the Project Manual applies to any contract in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These provisions are in addition to the provisions outlined for contracts in excess of \$2,000.

3.03 As outlined in the Contract Work Hours and Safety Standards Act, the terms “laborers” and “mechanics” include watchmen and guards.

END OF SECTION

"General Decision Number: OH20240001 03/08/2024

Superseded General Decision Number: OH20230001

State: Ohio

Construction Types: Heavy and Highway

Counties: Ohio Statewide.

Heavy and Highway Construction Projects

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

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

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	01/26/2024
2	03/08/2024

BROH0001-001 06/01/2022

DEFIANCE, FULTON (Excluding Fulton, Amboy & Swan Creek Townships), HENRY (Excluding Monroe, Bartlow, Liberty, Washington, Richfield, Marion, Damascus & Townships & that part of Harrison Township outside corporate limits of city of Napoleon), PAULDING, PUTNAM and WILLIAMS COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0001-004 06/01/2022

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 31.40	18.55

BROH0003-002 06/01/2022

FULTON (Townships of Amboy, Swan Creek & Fulton), HENRY (Townships of Washington, Damascus, Richfield, Bartlow, Liberty, Harrison, Monroe, & Marion), LUCAS and WOOD (Townships of Perrysburg, Ross, Lake, Troy, Freedom, Montgomery, Webster, Center, Portage, Middleton, Plain, Liberty, Henry, Washington, Weston, Milton, Jackson & Grand Rapids) COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0005-003 06/01/2020

CUYAHOGA, LORAIN & MEDINA (Hinckley, Granger, Brunswick, Liverpool, Montville, York, Homer, Harrisville, Chatham, Litchfield & Spencer Townships and the city of Medina)

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS; CAULKERS;		
CLEANERS; POINTERS; &		
STONEMASONS.....	\$ 36.64	17.13
SANDBLASTERS.....	\$ 36.39	17.13
SEWER BRICKLAYERS & STACK		
BUILDERS.....	\$ 36.64	17.13
SWING SCAFFOLDS.....	\$ 37.14	17.13

BROH0006-005 06/01/2022

CARROLL, COLUMBIANA (Knox, Butler, West & Hanover Townships), STARK & TUSCARAWAS

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0007-002 06/01/2022

LAWRENCE

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH007-005 06/01/2022		

PORTAGE & SUMMIT

	Rates	Fringes
BRICKLAYER.....	\$ 31.40	18.55

BROH007-010 06/01/2017		

PORTAGE & SUMMIT

	Rates	Fringes
MASON - STONE.....	\$ 28.65	14.55

BROH008-001 06/01/2022		

COLUMBIANA (Salem, Perry, Fairfield, Center, Elk Run, Middleton, & Unity Townships and the city of New Waterford), MAHONING & TRUMBULL

	Rates	Fringes
BRICKLAYER.....	\$ 31.40	18.55

BROH009-002 06/01/2022		

BELMONT & MONROE COUNTIES and the Townships of Warren & Mt. Pleasant and the Village of Dillonvale in JEFFERSON COUNTY

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55
Refractory.....	\$ 31.45	19.01

BROH010-002 06/01/2022		

COLUMBIANA (St. Clair, Madison, Wayne, Franklin, Washington, Yellow Creek & Liverpool Townships) & JEFFERSON (Brush Creek & Saline Townships)

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH014-002 06/01/2022		

HARRISON & JEFFERSON (Except Mt. Pleasant, Warren, Brush Creek, Saline & Salineville Townships & the Village of Dillonvale)

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH016-002 06/01/2022		

ASHTABULA, GEAUGA, and LAKE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0018-002 06/01/2022		

BROWN, BUTLER, CLERMONT, HAMILTON, PREBLE (Gasper, Dixon, Israel, Lanier, Somers & Gratis Townships) & WARREN COUNTIES:

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0022-004 06/01/2022		

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HIGHLAND, LOGAN, MIAMI, MONTGOMERY, PREBLE (Jackson, Monroe, Harrison, Twin, Jefferson & Washington Townships) and SHELBY COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0032-001 06/01/2022		

GALLIA & MEIGS

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0035-002 06/01/2022		

ALLEN, AUGLAIZE, MERCER and VAN WERT COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0039-002 06/01/2022		

ADAMS & SCIOTO

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0040-003 06/01/2022		

ASHLAND, CRAWFORD, HARDIN, HOLMES, MARION, MORROW, RICHLAND, WAYNE and WYANDOT (Except Crawford, Ridge, Richland & Tymochtee Townships) COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 32.49	23.43

FOOTNOTE: Layout Man and Sawman rate: \$1.00 per hour above journeyman rate.

Free standing stack work ground level to top of stack; Sandblasting and laying of carbon masonry material in swing stage and/or scaffold; Ramming and spading of plastics and gunniting: \$1.50 per hour above journeyman rate. ""Hot"" work: \$2.50 above journeyman rate.

BROH0044-002 06/01/2022

	Rates	Fringes
Bricklayer, Stonemason COSHOCKTON, FAIRFIELD, GUERNSEY, HOCKING, KNOX, KICKING, MORGAN, MUSKINGUM, NOBLE (Beaver, Buffalo, Seneca & Wayne Townships) & PERRY COUNTIES:.....	\$ 31.40	18.55

BROH0045-002 06/01/2021

FAYETTE, JACKSON, PIKE, ROSS and VINTON COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 30.40	17.66

BROH0046-002 06/01/2022

ERIE, HANCOCK, HURON, OTTAWA, SANDUSKY, SENECA, WOOD (Perry & Bloom Townships) and WYANDOT (Tymochtee, Crawford, Ridge & Richland Townships) COUNTIES & the Islands of Lake Erie north of Sandusky

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

FOOTNOTE: Layout Man and Sawman rate: \$1.00 per hour above journeyman rate.
Free standing stack work ground level to top of stack; Sandblasting and laying of carbon masonry material in swing stage and/or scaffold; Ramming and spading of plastics and gunniting: \$1.50 per hour above journeyman rate. ""Hot"" work: \$2.50 above journeyman rate.

BROH0052-001 06/01/2022

ATHENS COUNTY

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

BROH0052-003 06/01/2022

NOBLE (Brookfield, Noble, Center, Sharon, Olive, Enoch, Stock, Jackson, Jefferson & Elk Townships) and WASHINGTON COUNTIES

	Rates	Fringes
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Bricklayer, Stonemason.....	\$ 31.40	18.55
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BROH0055-003 06/01/2022

DELAWARE, FRANKLIN, MADISON, PICKAWAY and UNION COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 31.40	18.55

CARP0003-004 05/01/2017

MAHONING & TRUMBULL

	Rates	Fringes
CARPENTER.....	\$ 26.20	17.42

CARP0069-003 05/01/2017

CARROLL, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
CARPENTER.....	\$ 25.98	15.98

CARP0069-006 05/01/2017

COSHOCTON, HOLMES, KNOX & MORROW

	Rates	Fringes
CARPENTER.....	\$ 24.04	15.29

CARP0171-002 05/01/2019

BELMONT, COLUMBIANA, HARRISON, JEFFERSON & MONROE

	Rates	Fringes
CARPENTER.....	\$ 27.37	20.02

CARP0200-002 05/01/2023

ADAMS, ATHENS, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GUERNSEY, HIGHLAND, HOCKING, JACKSON, LAWRENCE, LICKING, MADISON, MARION, MEIGS, MORGAN, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, ROSS, SCIOTO, UNION, VINTON and WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 32.42	21.42
Diver.....	\$ 39.41	10.40
PILEDRIVERMAN.....	\$ 32.42	21.42

CARP0248-005 07/01/2008

LUCAS & WOOD

	Rates	Fringes
CARPENTER.....	\$ 27.27	14.58

CARP0248-008 07/01/2008

Rates Fringes

CARPENTER

DEFIANCE, FULTON, HANCOCK,
HENRY, PAULDING & WILLIAMS
COUNTIES.....

\$ 23.71 13.28

CARP0254-002 05/01/2017

ASHTABULA, CUYAHOGA, GEAUGA & LAKE

Rates Fringes

CARPENTER.....\$ 32.40 16.97

CARP0372-002 05/01/2023

ALLEN, AUGLAIZE, HARDIN, MERCER, PUTNAM & VAN WERT

Rates Fringes

CARPENTER.....\$ 28.85 24.59

CARP0639-003 05/01/2017

MEDINA, PORTAGE & SUMMIT

Rates Fringes

CARPENTER.....\$ 30.42 16.99

CARP0735-002 05/01/2023

ASHLAND, ERIE, HURON, LORAIN & RICHLAND

Rates Fringes

CARPENTER.....\$ 31.62 21.63

CARP1311-001 05/01/2017

BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE,
GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY &
WARREN

Rates Fringes

Carpenter & Piledrivermen.....\$ 29.34 15.95
Diver.....\$ 40.58 9.69

CARP1393-002 07/01/2008

CRAWFORD, DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA,
PAULDING, SANDUSKY, SENECA, WILLIAMS & WOOD

Rates Fringes

Piledrivermen & Diver's Tender...\$ 27.30 16.05

DIVERS - \$250.00 per day

CARP1393-003 07/01/2008

ALLEN, AUGLAIZE, HARDIN, MERCER, PUTNAM, VAN WERT & WYANDOT

	Rates	Fringes
Piledrivermen & Diver's Tender...	\$ 25.15	15.92

DIVERS - \$250.00 per day

CARP1871-006 05/01/2017

BELMONT, HARRISON, & MONROE

	Rates	Fringes
Diver, Wet.....	\$ 48.11	17.33
Piledrivermen; Diver, Dry.....	\$ 32.07	17.33

CARP1871-008 05/01/2017

ASHLAND, ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE,
LORAIN, MEDINA, PORTAGE, RICHLAND & SUMMIT

	Rates	Fringes
Diver, Wet.....	\$ 45.80	18.84
Piledrivermen; Diver, Dry.....	\$ 30.53	18.84

CARP1871-014 05/01/2017

CARROLL, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
Diver, Wet.....	\$ 38.34	16.95
Piledrivermen; Diver, Dry.....	\$ 25.56	16.95

CARP1871-015 05/01/2017

COSHOCTON, HOLMES, KNOX & MORROW

	Rates	Fringes
Diver, Wet.....	\$ 37.34	16.07
Piledrivermen; Diver, Dry.....	\$ 24.89	16.07

CARP1871-017 05/01/2017

MAHONING & TRUMBULL

	Rates	Fringes
Diver, Wet.....	\$ 40.65	17.62
Piledrivermen; Diver, Dry.....	\$ 27.10	17.62

CARP2235-012 01/01/2014

COLUMBIANA & JEFFERSON

	Rates	Fringes
PILEDRIVERMAN.....	\$ 31.74	16.41

CARP2239-001 07/01/2008

CRAWFORD, OTTAWA, SANDUSKY, SENECA & WYANDOT

	Rates	Fringes
CARPENTER.....	\$ 23.71	13.28

* ELEC0008-002 05/29/2023

DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING,
PUTNAM, SANDUSKY, SENECA, WILLIAMS & WOOD

	Rates	Fringes
CABLE SPLICER.....	\$ 38.98	18.96
ELECTRICIAN.....	\$ 46.38	4.5%+21.96

ELEC0032-003 12/04/2023

ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, SHELBY, VAN WERT &
WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Ridgeland,
Ridge & Salem Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 35.17	22.82

ELEC0038-002 04/24/2023

CUYAHOGA, GEAUGA (Bainbridge, Chester & Russell Townships) &
LORAIN (Columbia Township)

	Rates	Fringes
ELECTRICIAN Excluding Sound & Communications Work.....	\$ 43.13	23.31

FOOTNOTES;

- a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day
- b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service

ELEC0038-008 04/24/2023

CUYAHOGA, GEAUGA (Bainbridge, Chester & Russell Townships) &
LORAIN (Columbia Township)

	Rates	Fringes
Sound & Communication Technician Communications Technician...	\$ 29.80	13.80
Installer Technician.....	\$ 28.55	13.76

FOOTNOTES;

- a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day

b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service

 ELEC0064-003 11/27/2023

COLUMBIANA (Butler, Fairfield, Perry, Salem & Unity Townships)
 MAHONING (Austintown, Beaver, Berlin, Boardman, Canfield, Ellsworth, Coitsville, Goshen, Green, Jackson, Poland, Springfield & Youngstown Townships), & TRUMBULL (Hubbard & Liberty Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 37.90	20.08

 ELEC0071-001 01/01/2019

ASHLAND, CHAMPAIGN, CLARK, COSHOCTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HIGHLAND, HOCKING, JACKSON (Coal, Jackson, Liberty, Milton, Washington & Wellston Townships), KNOX, LICKING, MADISON, MARION, MONROE, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, Peepee, Perry & Seal Townships), RICHLAND, ROSS, TUSCARAWAS (Auburn, Bucks, Clay, Jefferson, Oxford, Perry, Salem, Rush, Washington & York Townships), UNION, VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships), and WASHINGTON COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operators.....	\$ 33.62	13.40
Groundmen.....	\$ 24.17	11.32
Linemen & Cable Splicers....	\$ 38.27	14.42

 ELEC0071-004 01/01/2019

AUGLAIZE, CLINTON, DARKE, GREENE, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, and SHELBY COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 33.62	13.40
Groundman.....	\$ 24.17	11.32
Lineman & Cable Splicers....	\$ 38.27	14.42

 ELEC0071-005 12/31/2018

ASHTABULA, CUYAHOGA, GEAUGA, LAKE & LORAIN

	Rates	Fringes
LINE CONSTRUCTION: Equipment Operator		
DOT/Traffic Signal & Highway Lighting Projects...	\$ 32.44	14.10
Municipal Power/Transit Projects.....	\$ 40.10	16.42
LINE CONSTRUCTION: Groundman DOT/Traffic Signal &		

Highway Lighting Projects...	\$ 25.06	12.26
Municipal Power/Transit Projects.....	\$ 31.19	14.11
LINE CONSTRUCTION:		
Linemen/Cable Splicer DOT/Traffic Signal & Highway Lighting Projects...	\$ 36.13	15.03
Municipal Power/Transit Projects.....	\$ 44.56	17.58

ELEC0071-008 01/01/2019

COLUMBIANA, MAHONING, and TRUMBULL COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 33.62	13.40
Groundman.....	\$ 24.17	11.32
Lineman & Cable Splicers....	\$ 38.27	14.42

ELEC0071-010 01/01/2019

BELMONT, CARROLL, HARRISON, HOLMES, JEFFERSON, MEDINA, PORTAGE,
STARK, SUMMIT, and WAYNE COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 33.62	13.40
Groundman.....	\$ 24.17	11.32
Lineman & Cable Splicers....	\$ 38.27	14.42

ELEC0071-013 01/01/2019

BROWN, BUTLER, CLERMONT, HAMILTON, and WARREN COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 33.62	13.40
Groundman.....	\$ 24.17	11.32
Lineman & Cable Splicers....	\$ 38.27	14.42

ELEC0071-014 01/01/2019

ADAMS, ATHENS, GALLIA, JACKSON (Bloomfield, Franklin, Hamilton,
Lick, Jefferson, Scioto & Madison Townships), LAWRENCE, MEIGS,
PIKE (Camp Creek, Marion, Newton, Scioto, Sunfish & Union
Townships), SCIOTO & VINTON (Brown, Knox, Madison, Vinton &
Wilkesville Townships)

	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 33.62	13.40
Groundman.....	\$ 24.17	11.32
Lineman & Cable Splicers....	\$ 38.27	14.42

* ELEC0082-002 12/04/2023

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN
(Wayne, Clear Creek & Franklin Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 36.00	21.99

* ELEC0082-006 11/28/2022

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN
(Wayne, Clear Creek & Franklin Townships)

	Rates	Fringes
Sound & Communication Technician		
Cable Puller.....	\$ 13.10 **	4.76
Installer/Technician.....	\$ 26.20	13.89

ELEC0129-003 02/27/2023

LORAIN (Except Columbia Township) & MEDINA (Litchfield & Liverpool Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 39.30	18.30

ELEC0129-004 02/27/2023

ERIE & HURON (Lyme, Ridgefield, Norwalk, Townsend, Wakeman, Sherman, Peru, Bronson, Hartland, Clarksfield, Norwich, Greenfield, Fairfield, Fitchville & New London Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 39.30	18.30

* ELEC0141-003 06/01/2023

BELMONT COUNTY

	Rates	Fringes
CABLE SPLICER.....	\$ 30.63	25.87
ELECTRICIAN.....	\$ 35.70	28.87

ELEC0212-003 11/26/2018

BROWN, CLERMONT & HAMILTON

	Rates	Fringes
Sound & Communication Technician.....	\$ 24.35	10.99

ELEC0212-005 06/05/2023

BROWN, CLERMONT, and HAMILTON COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 34.41	21.55

ELEC0245-001 08/29/2022

ALLEN, HARDIN, VAN WERT & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Richland, Ridge & Salem Townships)

	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 32.37	26.5%+7.25
Groundman Truck Driver.....	\$ 19.35	7.00+27.25%
Lineman.....	\$ 44.22	7.00+27.25%

FOOTNOTE: a. Half day's Paid Holiday: The last 4 hours of the workday prior to Christmas or New Year's Day

* ELEC0245-003 01/01/2024

DEFIANCE, FULTON, HANCOCK, HENRY, HURON, LUCAS, OTTAWA, PAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS, and WOOD COUNTIES

	Rates	Fringes
Line Construction		
Cable Splicer.....	\$ 52.53	7.75+27%
Groundman/Truck Driver.....	\$ 19.99	7.75+27%
Heli-arc Welding.....	\$ 45.98	7.75+27%
Lineman.....	\$ 45.68	7.75+27%
Operator - Class 1.....	\$ 36.54	7.75+27%
Operator - Class 2.....	\$ 31.98	7.75+27%
Traffic Signal & Lighting Technician.....	\$ 41.11	7.75+27%

FOOTNOTE: a. 6 Observed Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day. Employees who work on a holiday shall be paid at a rate of double their applicable classified straight-time rates for the work performed on such holiday.

ELEC0245-004 08/28/2023

ERIE COUNTY

	Rates	Fringes
Line Construction		
Cable Splicer.....	\$ 49.14	26.75%+6.75
Cablesplicer.....	\$ 52.76	27%+7.50
Groundman/Truck Driver.....	\$ 20.07	27%+7.50
Lineman.....	\$ 45.88	27%+7.50
Operator - Class 1.....	\$ 36.70	27%+7.50
Operator - Class 2.....	\$ 32.12	27%+7.50

FOOTNOTE: a. 6 Observed Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day. Employees who work on a holiday shall be paid at a rate of double their applicable classified straight-time rates for the work performed on such holiday.

* ELEC0246-001 10/30/2023

	Rates	Fringes
ELECTRICIAN.....	\$ 42.50	55%+13.88

FOOTNOTE: a. 1 1/2 Paid Holidays: The last scheduled workday prior to Christmas & 4 hours on Good Friday.

 ELEC0306-005 05/29/2023

MEDINA (Brunswick, Chatham, Granger, Guilford, Harrisville, Hinckley, Homer, Lafayette, Medina, Montville, Sharon, Spencer, Wadsworth, Westfield & York Townships), PORTAGE (Atwater, Aurora, Brimfield, Deerfield, Franklin, Mantua, Randolph, Ravenna, Rootstown, Shalersville, Streetsboro & Suffield Townships), SUMMIT & WAYNE (Baughman, Canaan, Chester, Chippewa, Congress, Green, Milton, & Wayne Townships)

	Rates	Fringes
CABLE SPLICER.....	\$ 36.87	16.56
ELECTRICIAN.....	\$ 40.15	5.25%+20.85

 ELEC0317-002 05/29/2023

GALLIA & LAWRENCE

	Rates	Fringes
CABLE SPLICER.....	\$ 32.68	18.13
ELECTRICIAN.....	\$ 37.15	28.48

 * ELEC0540-005 01/01/2024

CARROLL (Northern half, including Fox, Harrison, Rose & Washington Townships), COLUMBIANA (Knox Township), HOLMES, MAHONING (Smith Township), STARK, TUSCARAWAS (North of Auburn, Clay, Rush & York Townships), and WAYNE (South of Baughman, Chester, Green & Wayne Townships) COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 36.96	28.18

 * ELEC0573-003 11/27/2023

ASHTABULA (Colebrook, Wayne, Williamsfield, Orwell & Windsor Townships), GEauga (Auburn, Middlefield, Parkman & Troy Townships), MAHONING (Milton Township), PORTAGE (Charlestown, Edinburg, Freedom, Hiram, Nelson, Palmyra, Paris & Windham Townships), and TRUMBULL (Except Liberty & Hubbard Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 40.40	22.08

 * ELEC0575-001 05/29/2023

ADAMS, FAYETTE, HIGHLAND, HOCKING, JACKSON (Bloomfield, Franklin, Hamilton, Jefferson, Lick, Madison, Scioto, Coal, Jackson, Liberty, Milton & Washington Townships), PICKAWAY

(Deer Creek, Perry, Pickaway, Salt Creek & Wayne Townships), PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, PeePee, Perry, Seal, Camp Creek, Newton, Scioto, Sunfish, Union & Marion Townships), ROSS, SCIOTO & VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 37.00	22.26

* ELEC0648-001 08/29/2023		

BUTLER and WARREN COUNTIES (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union & Washington Townships)

	Rates	Fringes
CABLE SPLICER.....	\$ 30.50	18.23
ELECTRICIAN.....	\$ 34.00	21.98

* ELEC0673-004 01/01/2024		

ASHTABULA (Excluding Orwell, Colebrook, Williamsfield, Wayne & Windsor Townships), GEAUGA (Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury & Thompson Townships) and LAKE COUNTIES

	Rates	Fringes
CABLE SPLICER.....	\$ 33.81	21.47
ELECTRICIAN.....	\$ 37.38	23.75

ELEC0683-002 05/29/2023		

CHAMPAIGN, CLARK, DELAWARE, FAIRFIELD, FRANKLIN, MADISON, PICKAWAY (Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut & Washington Townships), and UNION COUNTIES

	Rates	Fringes
CABLE SPLICER.....	\$ 38.75	24.19
ELECTRICIAN.....	\$ 37.75	24.16

ELEC0688-003 05/30/2022		

ASHLAND, CRAWFORD, HURON (Richmond, New Haven, Ripley & Greenwich Townships), KNOX (Liberty, Clinton, Union, Howard, Monroe, Middleberry, Morris, Wayne, Berlin, Pike, Brown & Jefferson Townships), MARION, MORROW, RICHLAND and WYANDOT (Sycamore, Crane, Eden, Pitt, Antrim & Tymochtee Townships) COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 32.30	21.83

ELEC0972-002 06/01/2023		

ATHENS, MEIGS, MONROE, MORGAN, NOBLE, VINTON (Brown, Knox,

Madison, Vinton & Wilkesville Townships), and WASHINGTON
 COUNITES

	Rates	Fringes
CABLE SPLICER.....	\$ 35.70	30.26
ELECTRICIAN.....	\$ 35.45	30.25

ELEC1105-001 05/29/2023		

COSHOCTON, GUERNSEY, KNOX (Jackson, Clay, Morgan, Miller, Milford, Hilliar, Butler, Harrison, Pleasant & College Townships), LICKING, MUSKINGUM, PERRY, and TUSCARAWAS (Auburn, York, Clay, Jefferson, Rush, Oxford, Washington, Salem, Perry & Bucks Townships) COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 36.45	24.22

ENGI0018-003 05/01/2019		

ASHTABULA, CUYAHOGA, ERIE, GEAUGA, LAKE, LORAIN, MEDINA, PORTAGE, and SUMMIT COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 38.63	15.20
GROUP 2.....	\$ 38.53	15.20
GROUP 3.....	\$ 37.49	15.20
GROUP 4.....	\$ 36.27	15.20
GROUP 5.....	\$ 30.98	15.20
GROUP 6.....	\$ 38.88	15.20
GROUP 7.....	\$ 39.13	15.20

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; Wheel Excavator; and Asphalt Plant Engineer (Cleveland District

Only).

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Horizontal Directional Drill (Over 50,000 ft lbs thrust); Hydro Milling Machine; Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24" wide & under); Vermeer type Concrete Saw; and Maintenance Operators (Portage and Summit Counties Only).

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer (Portage and Summit Counties Only); Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4" & over discharge); Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); Welding Machines; and Railroad Tie Inserter/Remover; Articulating/straight bed end dumps if assigned (minus \$4.00 per hour.

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway); Finishing Machine; Fireperson, Floating Equipment (all types); Forklift; Form Trencher; Hydro Hammer expect masonry; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); and Vibratory Compactor with Integral Power.

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt Plant); Generator; Masonry Fork Lift; Inboard-Outboard Motor Boat Launch; Oil Heater (asphalt plant); Oiler/Helper; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signalperson; Tire Repairperson; VAC/ALLS; Cranes - Compact, track or rubber under 4,000 pound capacity; fueling and greasing; and Chainmen.

GROUP 6 - Master Mechanic & Boom from 150 to 180.

GROUP 7 - Boom from 180 and over.

ENGI0018-004 05/01/2019

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN,

BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, and YANDOT COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 37.14	15.20
GROUP 2.....	\$ 37.02	15.20
GROUP 3.....	\$ 35.98	15.20
GROUP 4.....	\$ 34.80	15.20
GROUP 5.....	\$ 29.34	15.20
GROUP 6.....	\$ 37.39	15.20
GROUP 7.....	\$ 37.64	15.20

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; and Wheel Excavator.

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Hydro Milling Machine; Horizontal Directional Drill (over 50,000 ft. lbs. thrust);Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24" wide & under); and Vermeer type Concrete Saw.

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low

pressure); Asphalt Plant Engineer; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4" & over discharge); Railroad Tie Inserter/Remover; Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); and Welding Machines; Articulatng/straight bed end dumps if assigned (minus \$4.00 per hour.

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway); Finishing Machine; Fireperson, Floating Equipment (all types); Fork Lift; Form Trencher; Hydro Hammer expect masonry; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); and Vibratory Compactor with Integral Power.

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt Plant); Generator; Masonary Forklift; Inboard-Outboard Motor Boat Launch; Oil Heater (asphalt plant); Oiler/Helper; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signaller; Tire Repairperson; VAC/ALLS; Cranes - Compact, track or rubber under 4,000 pound capacity; fueling and greasing; and Chainmen.

GROUP 6 - Master Mechanic & Boom from 150 to 180.

GROUP 7 - Boom from 180 and over.

ENGI0066-023 06/01/2017

COLUMBIANA, MAHONING & TRUMBULL COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 1 - A & B.....	\$ 39.23	19.66
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 2 - A & B.....	\$ 38.90	19.66
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 3 - A & B.....	\$ 34.64	19.66
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 4 - A & B.....	\$ 30.70	19.66
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 5 - A & B.....	\$ 27.30	19.66

HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 1 - C & D.....	\$ 35.96	19.66
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 2 - C & D.....	\$ 35.66	19.66
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 3 - C & D.....	\$ 31.76	19.66
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 4 - C & D.....	\$ 28.14	19.66
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 5 - C & D.....	\$ 25.03	19.66
ALL OTHER WORK		
GROUP 1.....	\$ 32.69	19.66
ALL OTHER WORK		
GROUP 2.....	\$ 32.42	19.66
ALL OTHER WORK		
GROUP 3.....	\$ 28.87	19.66
ALL OTHER WORK		
GROUP 4.....	\$ 25.58	19.66
ALL OTHER WORK		
GROUP 5.....	\$ 22.75	19.66

GROUP 1 - Rig, Pile Driver or Caisson Type; & Rig, Pile Hydraulic Unit Attached

GROUP 2 - Asphalt Heater Planer; Backfiller with Drag Attachment; Backhoe; Backhoe with Shear attached; Backhoe-Rear Pivotal Swing; Batch Plant-Central Mix Concrete; Batch Plant, Portable concrete; Berm Builder-Automatic; Boat Derrick; Boat-Tug; Boring Machine Attached to Tractor; Bullclam; Bulldozer; C.M.I. Road Builder & Similar Type; Cable Placer & Layer; Carrier-Straddle; Carryall-Scraper or Scoop; Chicago Boom; Compactor with Blade Attached; Concrete Saw (Vermeer or similar type); Concrete Spreader Finisher; Combination, Bidwell Machine; Crane; Crane-Electric Overhead; Crane-Rough Terrain; Crane-Side Boom; Crane-Truck; Crane-Tower; Derrick-Boom; Derrick-Car; Digger-Wheel (Not trencher or road widener); Double Nine; Drag Line; Dredge; Drill-Kenny or Similar Type; Easy Pour Median Barrier Machine (or similar type); Electromatic; Frankie Pile; Gradall; Grader; Gurry; Self-Propelled; Heavy Equipment Robotics Operator/Mechanic; Hoist-Monorail; Hoist-Stationary & Mobile Tractor; Hoist, 2 or 3 drum; Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal & Kuhlman; Land-Seagoing Vehicle; Loader, Elevating; Loader, Front End; Loader, Skid Steer; Locomotive; Mechanic/Welder; Metro Chip Harvester with Boom; Mucking Machine; Paver-Asphalt Finishing Machine; Paver-Road Concrete; Paver-Slip Form (C.M.I. or similar); Place Crete Machine with Boom; Post Driver (Carrier mounted); Power Driven Hydraulic Pump & Jack (When used in Slip Form or Lift Slab Construction); Pump Crete Machine; Regulator-Ballast; Hydraulic Power Unit not attached to Rig for Pile Drillings; Rigs-Drilling; Roto Mill or similar Full Lane (8' Wide & Over); Roto Mill or similar type (Under 8'); Shovel; Slip Form Curb Machine; Speedwing; Spikemaster; Stonecrusher; Tie Puller & Loader; Tie Tamper; Tractor-Double Boom; Tractor with Attachments; Truck-Boom; Truck-Tire; Trench Machine; Tunnel Machine (Mark 21 Java or similar); & Whirley (or similar type)

GROUP 3 - Asphalt Plant; Bending Machine (Pipeline or similar type); Boring machine, Motor Driven; Chip Harvester without Boom; Cleaning Machine, Pipeline Type; Coating Machine, Pipeline Type; Compactor; Concrete Belt Placer; Concrete Finisher; Concrete Planer or Asphalt; Concrete Spreader; Elevator; Fork Lift (Home building only); Fork lift & Lulls; Fork Lift Walk Behind (Hoisting over 1 buck high); Form Line Machine; Grease Truck operator; Grout Pump; Gunnite Machine; Horizontal Directional Drill Locator; Single Drum Hoist with or without Tower; Huck Bolting Machine; Hydraulic Scaffold (Hoisting building materials); Paving Breaker (Self-propelled or Ridden); Pipe Dream; Pot Fireperson (Power Agitated); Refrigeration Plant; Road Widener; Roller; Sasgen Derrick; Seeding Machine; Soil Stabilizer (Pump type); Spray Cure Machine, Self-Propelled; Straw Blower Machine; Sub-Grader; Tube Finisher or Broom C.M.I. or similar type; & Tugger Hoist

GROUP 4 - Air Curtain Destructor & Similar Type; Batch Plant-Job Related; Boiler Operator; Compressor; Conveyor; Curb Builder, self-propelled; Drill Wagon; Generator Set; Generator-Steam; Heater-Portable Power; Hydraulic Manipulator Crane; Jack-Hydraulic Power driven; Jack-Hydraulic (Railroad); Ladavator; Minor Machine Operator; Mixer-Concrete; Mulching Machine; Pin Puller; Power Broom; Pulverizer; Pump; Road Finishing Machine (Pull Type); Saw-Concrete-Self-Propelled (Highway Work); Signal Person; Spray Cure Machine-Motor Powered; Stump Cutter; Tractor; Trencher Form; Water Blaster; Steam Jenny; Syphon; Vibrator-Gasoline; & Welding Machine

GROUP 5 - Brakeperson; Fireperson; & Oiler

 IRON0017-002 05/01/2023

ASHTABULA (North of Route 6, starting at the Geauga County Line, proceeding east to State Route 45), CUYAHOGA, ERIE (Eastern 2/3), GEAUGA, HURON (East of a line drawn from the north border through Monroeville & Willard), LAKE, LORAIN, MEDINA (North of Old Rte. #224), PORTAGE (West of a line from Middlefield to Shalersville to Deerfield), and SUMMIT (North of Old Rte. #224, including city limits of Barberton) COUNTIES

Rates Fringes

IRONWORKER
 Ornamental, Reinforcing, &
 Structural.....\$ 35.83 28.01

 IRON0017-010 05/01/2023

ASHTABULA (Eastern part from Lake Erie on the north to route #322 on the south to include Conneaut, Kingsville, Sheffield, Denmark, Dorset, Cherry Valley, Wayne, Monroe, Pierpont, Richmond, Andover & Williamsfield Townships)

Rates Fringes

IRONWORKER
 Structural, including
 metal building erection &

Reinforcing.....\$ 35.83 28.01

IRON0044-001 06/01/2022

ADAMS (Western Part), BROWN, BUTLER (Southern Part), CLERMONT, CLINTON (South of a line drawn from Blanchester to Lynchburg), HAMILTON, HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) and WARREN (South of a line drawn from Blanchester through Morrow to the west county line) COUNTIES

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 32.37	22.30
Beyond 30-mile radius of Hamilton County Courthouse..	\$ 28.67	21.20
Up to & including 30-mile radius of Hamilton County Courthouse.....	\$ 27.60	20.70

IRON0044-002 06/01/2023

CLINTON (South of a line drawn from Blanchester to Lynchburg), HAMILTON, HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) & WARREN (South of a line drawn from Blanchester through Morrow to the west county line)

	Rates	Fringes
IRONWORKER		
Fence Erector.....	\$ 30.75	23.30
Ornamental; Structural.....	\$ 32.37	23.30

IRON0055-003 07/01/2023

CRAWFORD (Area Between lines drawn from where Hwy #598 & #30 meet through N. Liberty to the northern border & from said Hwy junction point due west to the border), DEFIANCE (S. of a line drawn from where Rte. #66 meets the northern line through Independence to the eastern county border), ERIE (Western 1/3), FULTON, HANCOCK, HARDIN (North of a line drawn from Maysville to a point 4 miles south of the northern line on the eastern line), HENRY, HURON (West of a line drawn from the northern border through Monroeville & Willard), LUCAS, OTTAWA, PUTNAM (East of a line drawn from the northern border down through Miller City to where #696 meets the southern border), SANDUSKY, SENECA, WILLIAMS (East of a line drawn from Pioneer through Stryker to the southern border), WOOD & WYANDOT (North of Rte. #30)

	Rates	Fringes
IRONWORKER		
Fence Erector.....	\$ 25.40	23.87
Flat Road Mesh.....	\$ 29.77	21.30
Tunnels & Caissons Under Pressure.....	\$ 29.77	21.30
All Other Work.....	\$ 34.25	28.20

IRON0147-002 06/01/2023

ALLEN (Northern half), DEFIANCE (Northern part, excluding south of a line drawn from where Rte. #66 meets the northern line through Independence to the eastern county border), MERCER (Northern half), PAULDING, PUTNAM (Western part, excluding east of a line drawn from the northern border down through Miller City to where #696 meets the southern border), VAN WERT, and WILLIAMS (Western part, excluding east of a line drawn from Pioneer through Stryker to the southern border) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 33.00	25.59

IRON0172-002 06/01/2023

CHAMPAIGN (Eastern one-third), CLARK (Eastern one-fourth), COSHOCTON (West of a line beginning at the northwestern county line going through Walhonding & Tunnel Hill to the southern county line), CRAWFORD (South of Rte. #30), DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HARDIN (Excluding a line drawn from Roundhead to Maysville), HIGHLAND (Eastern one-fifth), HOCKING, JACKSON (Northern half), KNOX, LICKING, LOGAN (Eastern one-third), MADISON, MARION, MORROW, MUSKINGUM (West of a line starting at Adams Mill going to Adamsville & going from Adamsville through Blue Rock to the southern border), PERRY, PICKAWAY, PIKE (Northern half), ROSS, UNION, VINTON and WYANDOT (South of Rte. #30) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 34.07	22.55

IRON0207-004 06/01/2023

ASHTABULA (Southern part starting at the Geauga County line), COLUMBIANA (E. of a line from Damascus to Highlandtown), MAHONING (N. of Old Route #224), PORTAGE (E. of a line from Middlefield to Shalersville to Deerfield) & TRUMBULL

	Rates	Fringes
IRONWORKER		
Layout; Sheeter.....	\$ 34.00	27.16
Ornamental; Reinforcing;		
Structural.....	\$ 33.00	27.16
Ornamental; Reinforcing.....	\$ 28.92	25.61

IRON0290-002 06/01/2023

ALLEN (Southern half), AUGLAIZE, BUTLER (North of a line drawn from east to the west county line going through Oxford, Darrrtown & Woodsdale), CHAMPAIGN (Excluding east of a line drawn from Catawla to the point where #68 intersects the northern county line), CLARK (Western two-thirds), CLINTON (Excluding south of a line drawn from Blanchester to Lynchburg), DARKE, GREENE, HIGHLAND (Inside lines drawn from Marshall to Lynchburg & from the northern county line through East Monroe to Marshall), LOGAN (West of a line drawn from West Liberty to where the northern county line meets the western county line of Hardin), MERCER (Southern half), MIAMI,

MONTGOMERY, PREBLE, SHELBY & WARREN (Excluding south of a line drawn from Blanchester through Morrow to the western county line) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 32.69	24.05

IRON0549-003 12/01/2022		

BELMONT, GUERNSEY, HARRISON, JEFFERSON, MONROE & MUSKINGUM (Excluding portion west of a line starting at Adams Mill going to Adamsville and going from Adamsville through Blue Rock to the south border)

	Rates	Fringes
IRONWORKER.....	\$ 35.19	25.66

IRON0550-004 05/01/2023		

ASHLAND, CARROLL, COLUMBIANA (W. of a line from Damascus to Highlandtown), COSHOCTON (E. of a line beginning at NW Co. line going through Walhonding & Tunnel Hill to the South Co. line), HOLMES, HURON (S. of Old Rte. #224), MAHONING (S. of Old Rte. #224), MEDINA (S. of Old Rte. #224), PORTAGE (S. of Old Rte. #224), RICHLAND, STARK, SUMMIT (S. of Old Rte. #224, Excluding city limits of Barberton), TUSCARAWAS, & WAYNE

	Rates	Fringes
Ironworkers:Structural, Ornamental and Reinforcing.....	\$ 33.00	22.27

IRON0769-004 06/01/2023		

ADAMS (Eastern Half), GALLIA, JACKSON (Southern Half), LAWRENCE & SCIOTO

	Rates	Fringes
IRONWORKER.....	\$ 36.16	28.34

IRON0787-003 12/01/2023		

ATHENS, MEIGS, MORGAN, NOBLE, and WASHINGTON COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 33.30	23.95

LAB00265-008 05/01/2023		

	Rates	Fringes
LABORER ASHTABULA, ERIE, HURON, LORAIN, LUCAS, MAHONING, MEDINA, OTTAWA, PORTAGE, SANDUSKY, STARK, SUMMIT, TRUMBULL & WOOD COUNTIES		

GROUP 1.....	\$ 35.05	13.70
GROUP 2.....	\$ 35.22	13.70
GROUP 3.....	\$ 35.55	13.70
GROUP 4.....	\$ 36.00	13.70
CUYAHOGA AND GEAUGA		
COUNTIES ONLY: SEWAGE		
PLANTS, WASTE PLANTS,		
WATER TREATMENT		
FACILITIES, PUMPING		
STATIONS, & ETHANOL PLANTS		
CONSTRUCTION.....	\$ 37.66	13.70
CUYAHOGA, GEAUGA & LAKE		
COUNTIES		
GROUP 1.....	\$ 36.28	13.70
GROUP 2.....	\$ 36.45	13.70
GROUP 3.....	\$ 36.78	13.70
GROUP 4.....	\$ 37.23	13.70
REMAINING COUNTIES OF OHIO		
GROUP 1.....	\$ 34.62	13.70
GROUP 2.....	\$ 34.79	13.70
GROUP 3.....	\$ 35.12	13.70
GROUP 4.....	\$ 35.57	13.70

LABORER CLASSIFICATIONS

GROUP 1 - Asphalt Laborer; Carpenter Tender; Concrete Curing Applicator; Dump Man (Batch Truck); Guardrail and Fence Installer; Joint Setter; Laborer (Construction); Landscape Laborer; Mesh Handlers & Placer; Right-of-way Laborer; Riprap Laborer & Grouter; Scaffold Erector; Seal Coating; Surface Treatment or Road Mix Laborer; Sign Installer; Slurry Seal; Utility Man; Bridge Man; Handyman; Waterproofing Laborer; Flagperson; Hazardous Waste (level D); Diver Tender; Zone Person & Traffic Control

GROUP 2 - Asphalt Raker; Concrete Puddler; Kettle Man Pipeline); Machine Driven Tools (Gas, Electric, Air); Mason Tender; Brick Paver; Mortar Mixer; Power Buggy or Power Wheelbarrow; Paint Striper; Sheeting & Shoring Man; Surface Grinder Man; Plastic Fusing Machine Operator; Pug Mill Operator; & Vacuum Devices (wet or dry); Rodding Machine Operator; Diver; Screwman or Paver; Screed Person; Water Blast, Hand Held Wand; Pumps 4" & Under (Gas, Air or Electric) & Hazardous Waste (level C); Air Track and Wagon Drill; Bottom Person; Cofferdam (below 25 ft. deep); Concrete Saw Person; Cutting with Burning Torch; Form Setter; Hand Spiker (Railroad); Pipelayer; Tunnel Laborer (without air) & Caisson; Underground Person (working in Sewer and Waterline, Cleaning, Repairing & Reconditioning); Sandblaster Nozzle Person; & Hazardous Waste (level B)

GROUP 3 - Blaster; Mucker; Powder Person; Top Lander; Wrencher (Mechanical Joints & Utility Pipeline); Yarner; Hazardous Waste (level A); Concrete Specialist; Concrete Crew in Tunnels (With Air-pressurized - \$1.00 premium); Curb Setter & Cutter; Grade Checker; Utility Pipeline Tapper; Waterline; and Caulker

GROUP 4 - Miner (With Air-pressurized - \$1.00 premium); & Gunite Nozzle Person

TUNNEL LABORER WITH AIR-PRESSURIZED ADD \$1.00 TO BASE RATE

SIGNAL PERSON WILL RECEIVE THE RATE EQUAL TO THE RATE PAID THE LABORER CLASSIFICATION FOR WHICH HE OR SHE IS SIGNALING.

 PAIN0006-002 05/01/2023

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN, PORTAGE (N. of the East-West Turnpike) & SUMMIT (N. of the East-West Turnpike)

	Rates	Fringes
PAINTER		
COMMERCIAL NEW WORK; REMODELING; & RENOVATIONS		
GROUP 1.....	\$ 30.75	18.95
GROUP 2.....	\$ 31.15	18.95
GROUP 3.....	\$ 31.45	18.95
GROUP 4.....	\$ 37.01	18.95
COMMERCIAL REPAINT		
GROUP 1.....	\$ 29.25	18.95
GROUP 2.....	\$ 29.65	18.95
GROUP 3.....	\$ 29.95	18.95

PAINTER CLASSIFICATIONS - COMMERCIAL NEW WORK; REMODELING; & RENOVATIONS

GROUP 1 - Brush; & Roller

GROUP 2 - Sandblasting & Buffing

GROUP 3 - Spray Painting; Closed Steel Above 55 feet; Bridges & Open Structural Steel; Tanks - Water Towers; Bridge Painters; Bridge Riggers; Containment Builders

GROUP 4 - Bridge Blaster

PAINTER CLASSIFICATIONS - COMMERCIAL REPAINT

GROUP 1 - Brush; & Roller

GROUP 2 - Sandblasting & Buffing

GROUP 3 - Spray Painting

 PAIN0007-002 07/01/2023

FULTON, HENRY, LUCAS, OTTAWA (Excluding Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genova) & WOOD

	Rates	Fringes
PAINTER		
NEW COMMERCIAL WORK		
GROUP 1.....	\$ 28.59	20.04
GROUP 2.....	\$ 29.59	20.04
GROUP 3.....	\$ 29.59	20.04
GROUP 4.....	\$ 29.59	20.04
GROUP 5.....	\$ 29.59	20.04
GROUP 6.....	\$ 29.59	20.04
GROUP 7.....	\$ 29.59	20.04
GROUP 8.....	\$ 29.59	20.04
GROUP 9.....	\$ 29.59	20.04

REPAINT IS 90% OF JR

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Spray & Sandblasting Pot Tender

GROUP 2 - Refineries & Refinery Tanks; Surfaces 30 ft. or over where material is applied to or labor performed on above ground level (exterior), floor level (interior)

GROUP 3 - Swing Stage & Chair

GROUP 4 - Lead Abatement

GROUP 5 - All Methods of Spray

GROUP 6 - Solvent-Based Catalized Epoxy Materials of 2 or More Component Materials, to include Solvent-Based Conversion Varnish (excluding water based)

GROUP 7 - Spray Solvent Based Material; Sand & Abrasive Blasting

GROUP 8 - Towers; Tanks; Bridges; Stacks Over 30 Feet

GROUP 9 - Epoxy Spray (excluding water based)

PAIN0012-008 05/01/2019

BUTLER COUNTY

	Rates	Fringes
PAINTER		
GROUP 1.....	\$ 21.95	10.20
GROUP 2.....	\$ 25.30	10.20
GROUP 3.....	\$ 25.80	10.20
GROUP 4.....	\$ 26.05	10.20
GROUP 5.....	\$ 26.30	10.20

PAINTER CLASSIFICATIONS

GROUP 1: Bridge Equipment Tender; Bridge/Containment Builder

GROUP 2: Brush & Roller

GROUP 3: Spray

GROUP 4: Sandblasting; & Waterblasting

GROUP 5: Elevated Tanks; Steeplejack Work; Bridge; & Lead Abatement

PAIN0012-010 05/01/2019

BROWN, CLERMONT, CLINTON, HAMILTON & WARREN

	Rates	Fringes
PAINTER		
HEAVY & HIGHWAY BRIDGES-		
GUARDRAILS-LIGHTPOLES-		

STRIPING

Bridge Equipment Tender and Containment Builder....\$ 21.95	10.20
Bridges when highest point of clearance is 60 feet or more; & Lead Abatement Projects.....\$ 26.30	10.20
Brush & Roller.....\$ 25.30	10.20
Sandblasting & Hopper Tender; Water Blasting.....\$ 26.05	10.20
Spray.....\$ 25.80	10.20

* PAIN0093-001 12/01/2023

ATHENS, GUERNSEY, HOCKING, MONROE, MORGAN, NOBLE and
WASHINGTON COUNTIES

Rates	Fringes
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PAINTER

Bridges; Locks; Dams; Tension Towers; & Energized Substations.....\$ 35.45	23.69
Power Generating Facilities.\$ 32.30	23.69

PAIN0249-002 05/01/2023

CLARK, DARKE, GREENE, MIAMI, MONTGOMERY & PREBLE

Rates	Fringes
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PAINTER

GROUP 1 - Brush & Roller....\$ 26.23	12.56
GROUP 2 - Swing, Scaffold Bridges; Structural Steel; Open Acid Tank; High Tension Electrical Equipment; & Hot Pipes.....\$ 26.23	12.56
GROUP 3 - Spray; Sandblast; Steamclean; Lead Abatement.....\$ 26.98	12.56
GROUP 4 - Steeplejack Work..\$ 27.18	12.56
GROUP 5 - Coal Tar.....\$ 27.73	12.56
GROUP 6 - Bridge Equipment Tender & or Containment Builder.....\$ 34.94	12.56
GROUP 7 - Tanks, Stacks & Towers.....\$ 29.87	12.56
GROUP 8 - Bridge Blaster, Rigger.....\$ 37.94	12.56

PAIN0356-002 09/01/2009

KNOX, LICKING, MUSKINGUM, and PERRY

Rates	Fringes
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PAINTER

Bridge Equipment Tenders and Containment Builders....\$ 27.93	7.25
Bridges; Blasters; andRiggers.....\$ 34.60	7.25
Brush and Roller.....\$ 20.93	7.25
Sandblasting; Steam	

Cleaning; Waterblasting; and Hazardous Work.....	\$ 25.82	7.25
Spray.....	\$ 21.40	7.25
Structural Steel and Swing Stage.....	\$ 25.42	7.25
Tanks; Stacks; and Towers...	\$ 28.63	7.25

* PAIN0438-002 12/01/2023

BELMONT, HARRISON and JEFFERSON COUNTIES

	Rates	Fringes
PAINTER		
Bridges, Locks, Dams, Tension Towers & Energized Substations.....	\$ 36.09	19.49
Power Generating Facilities.	\$ 32.94	19.49

PAIN0476-001 06/01/2023

COLUMBIANA, MAHONING, and TRUMBULL COUNITIES

	Rates	Fringes
PAINTER		
GROUP 1.....	\$ 27.49	17.06
GROUP 2.....	\$ 34.12	17.06
GROUP 3.....	\$ 27.70	17.06
GROUP 4.....	\$ 27.99	17.06
GROUP 5.....	\$ 28.14	17.06
GROUP 6.....	\$ 28.39	17.06
GROUP 7.....	\$ 29.49	17.06

PAINTER CLASSIFICATIONS:

GROUP 1: Painters, Brush & Roller

GROUP 2: Bridges

GROUP 3: Structural Steel

GROUP 4: Spray, Except Bar Joist/Deck

GROUP 5: Epoxy/Mastic; Spray- Bar Joist/Deck; Working Above
50 Feet; and Swingstages

GROUP 6: Tanks; Sandblasting

GROUP 7: Towers; Stacks

* PAIN0555-002 11/01/2023

ADAMS, HIGHLAND, JACKSON, PIKE & SCIOTO

	Rates	Fringes
PAINTER		
GROUP 1.....	\$ 32.18	20.29
GROUP 2.....	\$ 33.81	20.29
GROUP 3.....	\$ 35.44	20.29
GROUP 4.....	\$ 38.63	20.29

PAINTER CLASSIFICATIONS

GROUP 1 - Containment Builder

GROUP 2 - Brush; Roller; Power Tools, Under 40 feet

GROUP 3 - Sand Blasting; Spray; Steam Cleaning; Pressure Washing; Epoxy & Two Component Materials; Lead Abatement; Hazardous Waste; Toxic Materials; Bulk & Storage Tanks of 25,000 Gallon Capacity or More; Elevated Tanks

GROUP 4 - Stacks; Bridges

PAIN0639-001 05/01/2011

	Rates	Fringes
Sign Painter & Erector.....	\$ 20.61	3.50+a+b+c

FOOTNOTES: a. 7 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; Christmas Day & 1 Floating Day
 b. Vacation Pay: After 1 year's service - 5 days' paid vacation; After 2, but less than 10 years' service - 10 days' paid vacation; After 10, but less than 20 years' service - 15 days' paid vacation; After 20 years' service - 20 days' paid vacation
 c. Funeral leave up to 3 days maximum paid leave for death of mother, father, brother, sister, spouse, child, mother-in-law, father-in-law, grandparent and inlaw provided employee attends funeral

PAIN0788-002 06/01/2023

ASHLAND, CRAWFORD, ERIE, HANCOCK, HURON, MARION, MORROW, OTTAWA (Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genoa), RICHLAND, SANDUSKY, SENECA & WYANDOT

	Rates	Fringes
PAINTER		
Brush & Roller.....	\$ 25.78	17.12
Structural Steel.....	\$ 27.38	17.12

WINTER REPAINT: Between December 1 to March 31 - 90%JR

\$.50 PER HOUR SHALL BE ADDED TO THE RATE OF PAY FOR THE CLASSIFICATION OF WORK:

While working swingstage, boatswain chair, needle beam and horizontal cable. While operating sprayguns, sandblasting, cobblasting and high pressure waterblasting (4000psi).

\$1.00 PER HOUR SHALL BE ADDED TO THE RATE OF PAY FOR THE CLASSIFICATION OF WORK:

For the application of catalized epoxy, including latex epoxy that is deemed hazardous, lead abatement, or for work or material where special precautions beyond normal work duties must be taken. For working on stacks, tanks, and towers over 40 feet in height.

PAIN0813-005 12/01/2008

GALLIA, LAWRENCE, MEIGS & VINTON

	Rates	Fringes
PAINTER		
Base Rate.....	\$ 24.83	10.00
Bridges, Locks, Dams & Tension Towers.....	\$ 27.83	10.00

PAIN0841-001 06/01/2023

MEDINA, PORTAGE (South of and including Ohio Turnpike), and
SUMMIT (South of and including Ohio Turnpike) COUNTIES

	Rates	Fringes
Painters:		
GROUP 1.....	\$ 30.18	15.50
GROUP 2.....	\$ 30.83	15.50
GROUP 3.....	\$ 30.93	15.50
GROUP 4.....	\$ 31.03	15.50
GROUP 5.....	\$ 31.43	15.50
GROUP 6.....	\$ 39.20	11.75
GROUP 7.....	\$ 31.68	15.50

PAINTER CLASSIFICATIONS:

GROUP 1 - Brush, Roller & Paperhanger

GROUP 2 - Epoxy Application

GROUP 3 - Swing Scaffold, Bosum Chair, & Window Jack

GROUP 4 - Spray Gun Operator of Any & All Coatings

GROUP 5 - Sandblast, Painting of Standpipes, etc. from
Scaffolds, Bridge Work and/or Open Structural Steel,
Standpipes and/or Water Towers

GROUP 6 - Public & Commerce Transportation, Steel or
Galvanized, Bridges, Tunnels & Related Support Items
(concrete)

GROUP 7 - Synthetic Exterior, Drywall Finisher and/or Taper,
Drywall Finisher and Follow-up Man Using Automatic Tools

PAIN0841-002 06/01/2022

CARROLL, COSHOCTON, HOLMES, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
PAINTER		
Bridges; Towers, Poles & Stacks; Sandblasting Steel; Structural Steel & Metalizing.....	\$ 23.50	15.45
Brush & Roller.....	\$ 28.18	15.45
Spray; Tank Interior & Exterior.....	\$ 23.50	15.45

 PAIN1020-002 07/01/2023

ALLEN, AUGLAIZE, CHAMPAIGN, DEFIANCE, HARDIN, LOGAN, MERCER,
 PAULDING, PUTNAM, SHELBY, VAN WERT, and WILLIAMS COUNTIES

	Rates	Fringes
PAINTER		
Brush & Roller.....	\$ 26.64	15.56
Drywall Finishing & Taping..	\$ 27.39	15.56
Lead Abatement.....	\$ 28.39	15.56
Spray, Sandblasting Pressure Cleaning, & Refinery.....	\$ 27.39	15.56
Swing Stage, Chair, Spiders, & Cherry Pickers...	\$ 26.89	15.56
Wallcoverings.....	\$ 27.39	15.56

All surfaces 40 ft. or over where material is applied to or
 labor performed on, above ground level (exterior), floor
 level (interior) - \$.50 premium

Applying Coal Tar Products - \$1.00 premium

 * PAIN1275-002 11/01/2023

DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, MADISON, PICKAWAY, ROSS
 & UNION

	Rates	Fringes
PAINTER		
Bridges.....	\$ 35.01	15.16
Brush; Roller.....	\$ 29.40	15.16
Sandblasting; Steamcleaning; Waterblasting (3500 PSI or Over)& Hazardous Work.....	\$ 30.10	15.16
Spray.....	\$ 29.90	15.16
Stacks; Tanks; & Towers.....	\$ 32.21	15.16
Structural Steel & Swing Stage.....	\$ 28.25	15.16

 PLAS0109-001 05/01/2023

MEDINA, PORTAGE, STARK, and SUMMIT COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 33.74	19.02

 PLAS0109-003 05/01/2023

CARROLL, HOLMES, TUSCARAWAS, and WAYNE COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 33.74	19.02

 PLAS0132-002 07/01/2023

BROWN, BUTLER, CLERMONT, HAMILTON, HIGHLAND, WARREN COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 28.40	16.24

PLAS0404-002 05/01/2018		

ASHTABULA, CUYAHOGA, GEAUGA, AND LAKE COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 29.63	17.11

PLAS0404-003 05/01/2018		

LORAIN COUNTY

	Rates	Fringes
PLASTERER.....	\$ 28.86	17.11

PLAS0526-022 05/01/2018		

COLUMBIANA, MAHONING, and TRUMBULL COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 28.86	17.11

PLAS0526-023 05/01/2018		

BELMONT, HARRISON, and JEFFERSON COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 28.21	17.11

PLAS0886-001 05/01/2023		

FULTON, HANCOCK, HENRY, LUCAS, PUTNAM, and WOOD COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 33.74	18.95

PLAS0886-003 05/01/2023		

DEFIANCE, ERIE, HURON, OTTAWA, PAULDING, SANDUSKY, and SENECA COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 33.74	18.95

PLAS0886-004 05/01/2023		

ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, and VAN WERT COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 33.74	18.95

PLUM0042-002 07/01/2023		

ASHLAND, CRAWFORD, ERIE, HURON, KNOX, LORAIN, MORROW, RICHLAND & WYANDOT

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 37.62	25.47

* PLUM0050-002 07/03/2023		

DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS & WOOD

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 47.15	30.21

PLUM0055-003 05/01/2023		

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, MEDINA (N. of Rte. #18 & Smith Road) & SUMMIT (N. of Rte. #303, including the corporate limits of the city of Hudson)

	Rates	Fringes
PLUMBER.....	\$ 41.11	29.88

PLUM0083-001 07/01/2017		

BELMONT & MONROE (North of Rte. #78)

	Rates	Fringes
Plumber and Steamfitter.....	\$ 32.16	31.51

PLUM0094-002 05/01/2023		

CARROLL (Northen Half), STARK, and WAYNE COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 38.03	23.09

PLUM0120-002 05/01/2023		

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN (the C.E.I. Power House in Avon Lake), MEDINA (N. of Rte. #18) & SUMMIT (N. of #303)

	Rates	Fringes
PIPEFITTER.....	\$ 45.62	27.30

* PLUM0162-002 06/01/2023		

CHAMPAIGN, CLARK, CLINTON, DARKE, FAYETTE, GREENE, MIAMI, MONTGOMERY & PREBLE

Rates Fringes

Plumber, Pipefitter,
Steamfitter.....\$ 40.00 26.87

PLUM0168-002 06/01/2023

MEIGS, MONROE (South of Rte. #78), MORGAN (South of Rte. #78)
& WASHINGTON

Rates Fringes

PLUMBER/PIPEFITTER.....\$ 38.95 34.97

PLUM0189-002 06/01/2022

DELAWARE, FAIRFIELD, FRANKLIN, HOCKING, LICKING, MADISON,
MARION, PERRY, PICKAWAY, ROSS & UNION

Rates Fringes

Plumber, Pipefitter,
Steamfitter.....\$ 43.25 26.94

PLUM0219-002 06/01/2023

MEDINA (Rte. #18 from eastern edge of Medina Co., west to
eastern corporate limits of the city of Medina, & on the county
road from the west corporate limits of Medina running due west
to and through community of Risley to the western edge of
Medina County - All territory south of this line), PORTAGE, and
SUMMIT (S. of Rte. #303) COUNTIES

Rates Fringes

Plumber and Steamfitter.....\$ 43.22 27.29

PLUM0392-002 06/01/2023

BROWN, BUTLER, CLERMONT, HAMILTON & WARREN

Rates Fringes

PLUMBER/PIPEFITTER.....\$ 38.62 25.83

PLUM0396-001 06/01/2023

COLUMBIANA (Excluding Washington & Yellow Creek Townships &
Liverpool Twp. - Secs. 35 & 36 - West of County Road #427),
MAHONING and TRUMBULL COUNTIES

Rates Fringes

PLUMBER/PIPEFITTER.....\$ 37.10 28.51

PLUM0495-002 06/01/2023

CARROLL (Rose, Monroe, Union, Lee, Orange, Perry & Loudon
Townships), COLUMBIANA (Washington & Yellow Creek Townships &
Liverpool Township, Secs. 35 & 36, West of County Rd. #427),
COSHOCOTON, GUERNSEY, HARRISON, HOLMES, JEFFERSON, MORGAN (South

to State Rte. #78 & from McConnelsville west on State Rte. #37 to the Perry County line), MUSKINGUM, NOBLE, and TUSCARAWAS COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 32.23	35.40

PLUM0577-002 06/01/2023		

ADAMS, ATHENS, GALLIA, HIGHLAND, JACKSON, LAWRENCE, PIKE, SCIOTO & VINTON

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 39.98	26.48

PLUM0776-002 07/01/2023		

ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, SHELBY and VAN WERT COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 40.07	28.95

TEAM0377-003 05/01/2023		

STATEWIDE, EXCEPT CUYAHOGA, GEAUGA & LAKE

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	\$ 31.49	16.40
GROUP 2.....	\$ 31.91	16.40

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Asphalt Distributor; Batch; 4- Wheel Service; 4-Wheel Dump; Oil Distributor & Tandem

GROUP 2 - Tractor-Trailer Combination: Fuel; Pole Trailer; Ready Mix; Semi-Tractor; & Asphalt Oil Spraybar Man When Operated From Cab; 5 Axles & Over; Belly Dump; End Dump; Articulated Dump; Heavy Duty Equipment; Low Boy; & Truck Mechanic

TEAM0436-002 05/01/2023		

CUYAHOGA, GEAUGA & LAKE

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	\$ 31.00	18.95
GROUP 2.....	\$ 32.50	18.95

GROUP 1: Straight & Dump, Straight Fuel

GROUP 2: Semi Fuel, Semi Tractor, Euclids, Darts, Tank, Asphalt Spreaders, Low Boys, Carry-All, Tourna-Rockers, Hi-Lifts, Extra Long Trailers, Semi-Pole Trailers, Double Hook-Up Tractor Trailers including Team Track & Railroad Siding, Semi-Tractor & Tri-Axle Trailer, Tandem Tractor & Tandem Trailer, Tag Along Trailer, Expandable Trailer or Towing Requiring Road Permits, Ready-Mix (Agitator or Non-Agitator), Bulk Concrete Driver, Dry Batch Truck, Articulated End Dump

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

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

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END OF GENERAL DECISION"

FEDERAL LABOR STANDARDS PROVISIONS

Wage Rate Requirements

(a) The following applies to any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1.

(1) Minimum wages.

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

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (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.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's web site, www.wdol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, 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 EPA award official 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 subrecipient(s) 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 subrecipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the State award official or will notify the State award official 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 and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the questions, including the views of all interested parties and the recommendation of the State award official, 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 asset for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or

an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (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. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the subgrant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. 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 subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, 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 subrecipient(s).

(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 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(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 CFR part 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 State, EPA 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 or State 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 CFR 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 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any

trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(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 CFR part 30.

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

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, 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 CFR 5.5.

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

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

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and subrecipient(s), State, EPA, 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 CFR 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 CFR 5.12(a)(1).

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

Contract Provision for Contracts in Excess Of \$100,000 and Subject to the Overtime Provisions of The Contract Work Hours and Safety Standards Act

Note: As used in these paragraphs, the terms laborers and mechanics include watchmen and guards.

(b) Contract Work Hours and Safety Standards Act. The following applies to any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. As used in these paragraphs, the terms laborers and mechanics include watchmen and guards.

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

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore 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 (a)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall 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 (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(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 (b)(1) through (4) of this section.

Contract Provision for Contracts in Excess of \$100,000 Subject ONLY to the Contract Work Hours and Safety Standards Act

(c) The following applies to any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1.

The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

The records shall be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Ohio EPA, EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

SECTION 008900 - PERMITS

ARTICLE 1 PERMITS OBTAINED BY THE OWNER

1.01 The following permits were obtained by the Owner related to this Project:

A. None.

ARTICLE 2 PERMITS OBTAINED BY CONTRACTOR

2.01 Contractor shall obtain all other permits required for the Work.

2.02 Any permits required for dewatering operations shall be obtained and paid for by Contractor.

END OF SECTION

SECTION 009113 – ADDENDA

ARTICLE 1 GENERAL

1.01 All Addenda issued by the OWNER/ENGINEER shall be inserted into this section.

1.02 If Addenda are issued, all prospective bidders are hereby notified that the Addenda forms a part of the Bidding and Contract documents and modifies the original bidding and contract documents issued. Acknowledge receipt of this addendum in the space provided in the bid proposal section of the specifications. Failure to do so may subject the bidder to disqualification.

END OF SECTION

Work Change Directive

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

You are directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

- Authorization for Work described herein to proceed on the basis of Cost of the Work due to:
 - Nonagreement on pricing of proposed change.
 - Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price \$ _____ (increase/decrease) Contract Time _____ days (increase/decrease)

If the change involves an increase, the estimated amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Accepted for Contractor by:	Date
Approved by Funding Agency (if applicable):	Date:

Change Order No. _____

Date of Issuance:

Effective Date:

Owner:

Owner's Contract No.:

Contractor:

Contractor's Project No.:

Engineer:

Engineer's Project No.:

Project:

Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:

ACCEPTED:

ACCEPTED:

By: _____
Engineer (if required)

By: _____
Owner (Authorized Signature)

By: _____
Contractor (Authorized Signature)

Title: _____

Title: _____

Title: _____

Date: _____

Date: _____

Date: _____

Approved by Funding Agency (if applicable)

By: _____
Title: _____

Date: _____

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Project Scope and Location
- B. Owner Supplied Products
- C. Contractor Use of Site
- D. Existing Services, Structures and Underground Facilities
- E. Protection of Work and Improvements
- F. Schedules and Work Sequence
- G. Owner Occupancy

1.2 PROJECT SCOPE AND LOCATION

- A. The project generally consists of installing residential potable water meters (total of 164 units), provision of meter interface equipment/software and related appurtenances. The project is structured in two contracts as follows:
 - 1. Contract A – Meter Crock Installation
The scope of work included in Contract A involves the supply and installation of meter crocks at the locations of the existing water services within the village. Meter crocks shall be installed with jumpers to facilitate continued water service until such a time as the metering equipment (supplied and installed under Contract B) has been installed.
 - 2. Contract B – Metering/Interface Equipment
The scope of work included in Contract B involves supply and installation (within meter crocks installed under Contract A) of residential potable water meters, provision of meter interface equipment/software and related appurtenances.
- B. The sites involved for the installation of new water meters are throughout the existing Village of South Solon, Madison County water distribution system. The Village Hall (site of metering interface) is located at 7120 North St., South Solon OH 43153. Existing elevated water storage tank (possible site for fixed network data collector) is located at 12595 North High St. in South Solon, Ohio.
- C. Contractor shall provide all items, articles, materials, operations or methods mentioned or scheduled on the Drawings or herein specified: including all labor, supervision, equipment, incidentals, taxes and permits necessary to complete the Work as described within the Contract Documents. Contractor shall install all items provided by Owner as mentioned or scheduled on the Drawings or herein specified.

1.3 OWNER SUPPLIED PRODUCTS

- A. PC Computer to serve as interface for metering software. Contractor to provide parameters required for computer equipment.

1.4 CONTRACTOR USE OF SITE

- A. Access to Site: Limited to Contractor.
- B. Construction Operations: No easements were obtained for this project. Contractor shall contain operations to within the rights-of-way, easements or lands upon which the work is to be performed. As necessary, and in accordance with the requirements outlined elsewhere within the project requirements, the Contractor shall coordinate with private property owners for installation of the metering equipment.

1.2 EXISTING SERVICES, STRUCTURES AND UNDERGROUND FACILITIES

- A. Should unchartered or incorrectly charted piping or other utilities be encountered during installation, notify Owner and consult with utility owner immediately for directions.
- B. Cooperate with Owner and utility companies in keeping respective services and facilities in operation and repair any damaged utilities to the satisfaction of the utility owner.
- C. Contractor shall not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Owner.
- D. Any accidental interruption of services shall be repaired immediately, including provision of temporary facilities until permanent repairs can be made.
- E. Existing underground facilities may consist of gas lines, water lines, storm sewers, and buried telephone and electric cables. The utilities shown on the Drawings are based on data furnished by the utility companies listed in the Drawings and on field observations and are believed to be reasonably accurate.
- F. Contractor shall notify the Ohio Utilities Protection Service (OUPS) (1-800-362-2764) and any other non-OUPS utility a minimum of 48 hours prior to commencing work on the project to coordinate the marking of utilities in the field. Based on information made available by the various utility companies, the companies shown in the Drawings have facilities in the area.
- G. Contractor shall proceed with caution in the excavation and preparation of the Site so the exact location of structures and Underground Facilities can be determined. Contractor shall include in Contract Price any costs for temporary or permanent relocations of such structures and Underground Facilities required to complete the Work unless specifically indicated otherwise in the Specifications.
- H. Contractor shall keep an accurate and complete record of all such structures and Underground Facilities encountered and shall provide the Owner a copy of this record. The record shall include a description of the item encountered, opinion as to condition, and adequate measurements and depths so that the item can be located in the future.

- I. Contractor shall inspect all structures and Underground Facilities for condition and soundness. Unsound conditions shall be reported to the structure or facility owner immediately after exposing. Contractor shall not proceed with the work until the structure or facility owner has been notified. Owner shall then be given time to inspect and correct, if required, the structure or Underground Facility. Contractor shall make claim under the provisions of Articles 11 and 12 of the General Conditions should the Contractor feel a price or time adjustment is justified.
- J. Any additional costs incurred because of the failure of the Contractor to report the condition of any and all existing structure or Underground Facility encountered shall be paid by the Contractor.
- K. Whenever the Engineer feels it is necessary to explore and excavate to determine the location of existing structures and Underground Facilities, the Contractor shall make explorations and excavations for such purposes. If Contractor is required to perform additional work in making the explorations and excavations, extra compensation will be allowed as provided for in the General Conditions.

1.5 PROTECTION OF WORK AND IMPROVEMENTS

- A. Contractor shall protect the property of the Owner, existing improvements, and the Work installed by the Contractor and others from abuse, damage, dust, debris, and other objectionable materials resulting from construction activities.
- B. Contractor shall provide suitable covers, partitions, or other dust and fume containment devices to suit construction operations.
- C. Contractor shall keep property, existing improvements and the Work, including structures, mains, fittings and accessories free from dirt and foreign matter at all times.
- D. Contractor shall provide temporary plugging of openings, holes and pipe ends that are existing or that the Contractor has installed.
- E. Property, improvements and Work damaged by Contractor shall be repaired or replaced by Contractor to the satisfaction of the Owner.

1.6 SCHEDULES AND WORK SEQUENCE

- A. Contractor shall provide schedules for performance of the Work in accordance with the provision set forth within the General Conditions. The schedule(s) shall detail all phases of construction to completion with milestones and associated dates. The schedule(s) shall be presented in a format acceptable to the Owner and Engineer.

1.7 OWNER OCCUPANCY

- A. Owner shall have access to public sites throughout the term of the project.
- B. Private property owners shall maintain access to their residences / locations throughout the term of the project.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 011100

SECTION 012000 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Measurement and payment criteria applicable to the Work performed under a unit price payment method.
- B. Defect assessment and non-payment for rejected work.

1.2 AUTHORITY

- A. Contractor shall take all measurements and compute quantities. The Owner or Engineer will verify measurements and quantities.
- B. Contractor shall assist by providing necessary equipment, labor, and survey equipment as required when requested by Owner or Engineer.

1.3 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities supplied or placed in the Work and verified by the Owner or Engineer determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.
- C. If a substantial change in quantity of any line item is anticipated, the Contractor shall notify the Owner or Engineer immediately.

1.4 GENERAL REQUIREMENTS

- A. Lump Sum and unit prices shall include providing all costs required for the complete construction of the specified unit of work including cost of materials and delivery; cost of installation; labor including social security, insurance, and other required fringe benefits; workman's compensation insurance; bond premiums; rental of equipment and machinery; taxes; testing; surveys; incidental expenses; and supervision.
- B. The Owner reserves the right to reject the Contractor's measurement of completed work that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.
- C. Contract Sum adjustments will be by Change Order on basis of net accumulative change for each unit price category.
 - 1. Except as otherwise specified, unit prices shall apply to both deductive and additive variations of quantities.

2. Lump sum and unit prices in the Agreement shall remain in effect until date of final completion of the entire Work.
- D. Partial payment for material and equipment properly stored and protected will be made in accordance with the requirements of the General Conditions.
- E. Payment will be made at the respective contract unit and lump sum price for each item shown in the Agreement, installed and accepted, which price and payment shall constitute full compensation for furnishing all materials and performing all Work in connection therewith and incidental thereto.
 1. No separate payment will be made for:
 - a. Record Drawings
 - b. Construction of haul roads as may be required.
 - c. Testing

1.5 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer and Owner, it is not practical to remove and replace the Work, the Engineer and Owner will direct one of the following remedies:
 1. The defective Work may remain, but the unit/lump sum price will be adjusted to a new price at the discretion of the Engineer and Owner.
 2. The defective Work will be partially repaired to the instructions of the Engineer and Owner, and the price will be adjusted to a new price at the discretion of the Engineer and Owner.
 3. The individual specification sections may modify these options or may identify a specific method for modification or correction.
- C. The authority of the Engineer and Owner to assess the defect and identify payment adjustment is final.

1.6 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
 1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from the transporting vehicle.
 4. Products placed beyond the lines and levels of the required Work.
 5. Products remaining on hand after completion of the Work.
 6. Loading, hauling, and disposing of rejected Products.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 PAYMENT APPLICATION

A. Required Forms

1. Utilize Application for Payment Form provided in Contract Documents Section of this Project Manual.

B. Preparation of Applications:

1. Present required information in typewritten form.
2. Execute certification by signature of authorized officer.
3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
4. List each authorized Change Order.
5. Prepare Application for Final Payment as specified in Section 017800.

C. Submittal Procedures:

1. Submit one (1) originally executed copies of each Application for Payment, Schedule of Values, and supporting documentation including, but not limited to invoices, weight slips, and shipping receipts.
2. Submit an updated construction schedule with each Application for Payment.
3. Payment Period: Submit Application for Payment by the first of each month to the Engineer.
4. Submit with transmittal letter as specified for Submittals in Section 013300.
5. Submit two (2) originally executed waivers for partial payment.
6. Submit two (2) certified payroll reports for payroll period.
7. If requesting payment for stored materials, submit four (4) copies of material invoice and shipping request.
8. Submit any other documentation as requested by the Engineer or Owner.

D. Substantiating Data

1. When Owner or Engineer requests substantiating information, submit data justifying dollar amounts in question.
2. Provide one copy of data with a cover letter for each copy of submittal. Show application number and date, and line item by number and description.

END OF SECTION 012000

SECTION 013100 - COORDINATION, FIELD ENGINEERING AND MEETINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Coordination – General.
- B. Coordination with Owner’s Operations.
- C. Field engineering.
- D. Progress meetings.
- E. Pre-installation conferences.

1.2 COORDINATION - GENERAL

- A. Contractor shall coordinate scheduling, submittals, and work of the various sections of the work to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later. Refer to Section 001100 – Summary of Work for specific construction sequence.
- B. Contractor shall verify that utility requirement characteristics of operating equipment are compatible with building utilities and coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Contractor shall coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on drawings and shall follow routing shown for pipes, ducts and conduit as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance and for repairs.
- D. In finished areas, except as otherwise indicated, Contractor shall conceal pipes, ducts and wiring within the construction and coordinate the locations of fixtures and outlets with finish elements.
- E. Contractor shall coordinate completion and clean-up of work of separate sections in preparation for substantial completion and for portions of work designated for Owner’s occupancy.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- G. Coordinate work with other site contractors involved in the Project as indicated by the Plans and Specifications, or as directed by the Owner.

1.3 COORDINATION WITH OWNER'S OPERATIONS

- A. The Contractor shall schedule construction activities so as to keep existing Owner's roadways, utilities and facilities in operation at all times unless otherwise approved by the Owner.
- B. Temporary roadways if required to divert traffic around this work area shall be furnished, maintained and subsequently removed by the Contractor.
- C. All temporary pumping, piping or miscellaneous equipment required shall be furnished, maintained and subsequently removed by the Contractor.
- D. All proposed construction sequences, and all process shutdowns and equipment tie-ins shall be scheduled well in advance and shall occur only after being approved by the Owner.

1.4 FIELD ENGINEERING

- A. Contractor shall locate and protect property stakes, legal survey monuments, and survey control and reference points. Contractor shall pay for replacement of disturbed property stakes and legal survey monuments by a Professional Surveyor registered in the State of Ohio and acceptable to the Owner.
- B. Contractor shall provide field engineering services as required to establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- C. Contractor shall be responsible for all lines, elevations, and measurements of buildings, structures, piping, utilities, and other work executed by the Contractor under the Contract. Contractor must exercise proper precaution to verify figures before laying out the work, and will be held responsible for any error resulting from their failure to exercise such precaution.

1.5 PROGRESS MEETINGS

- A. Progress meetings will be held throughout progress of the Work at intervals agreed to by the Owner, Engineer and Contractor. Interval will generally be monthly.
- B. Contractor's project manager, job superintendent, major subcontractors and suppliers shall attend as appropriate to agenda topics for each meeting. Contractor's representatives shall have authority to bind Contractor to decisions at the meetings.
- C. At the meetings the Contractor shall submit typed reports detailing the progress of the Work, compliance with submitted progress schedules and future construction plans affecting the schedule of the Work.
- D. The Engineer will prepare and distribute minutes to all attending parties.

1.6 PREINSTALLATION CONFERENCES

- A. When required in individual specification Section, convene a pre-installation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
- C. Notify Engineer a minimum of five (5) days in advance of meeting date.
- D. Review conditions of installation, preparation and installation procedures, and coordination with related work.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 013100

SECTION 013216 - PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. Section 013300 – Submittals.

1.2 FORMAT

- A. Prepare schedules as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first workday of each week.
- B. Sequence of Listings: In the same sequence as the Bid Schedule contained within this Project Manual or the schedule of values provide for lump sum work.
- C. Scale and Spacing: To provide space for notations and revisions.
- D. Sheet Size: Minimum 8-1/2 X 11 inches. Maximum of 22" x 34". All sheets submitted shall be easily reproducible and not requiring to piece together more than 3 sheets.

1.3 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify work of separate stages, separate floors and other logically grouped activities.
- C. Provide sub-schedules to define critical portions of the entire schedule.
- D. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the last day of each month.
- E. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products, if applicable, and Products identified under Allowances, if applicable, and dates reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.
- F. Indicate delivery dates for Owner furnished products and Products identified under Allowances, if applicable.
- G. Coordinate content with bid schedule or schedule of values as appropriate.

1.4 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

- B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- C. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect, including the effect of changes on schedules of separate contractors.

1.5 SUBMITTALS

- A. Submit Preliminary Progress Schedule in accordance with the requirements outlined in Paragraph 2.05 of the General Conditions.
- B. Submit revised Progress Schedules with each Application for Payment.

1.6 DISTRIBUTION

- A. Distribute copies of reviewed schedules to Project site file, Subcontractors, suppliers, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 013216

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:

1. Whenever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards.
2. To facilitate Contractor's understanding of the design intent, procedures have been established for advanced submittal of design data and for its review or rejection by the Engineer.
3. The type of submittal requirements specified in this section include shop drawings, product data, samples and other miscellaneous work related submittals.

B. Related work described elsewhere:

1. Additional requirements for submittals are described in other sections of these specifications. Submittals shall conform to Article 6 of the General Conditions.
2. Section 013216 – Progress Schedules
3. Section 017823 – Operation and Maintenance Data

C. It is emphasized that the Engineer/Architect's review of Contractor's submitted data is for general conformance to the contract drawings and specifications but subject to the detailed requirements of drawings and specifications. Although the Engineer/Architect may review submitted data in detail, such review is an effort to discover errors and omissions in Contractor's drawings. The Engineer/Architect's review shall in no way relieve the Contractor of his obligation to properly coordinate the work and to Engineer/Architect the details of the work in such manner that the purposes and intent of the contract will be achieved. Such review by the Engineer/Architect shall not be construed as placing on him or on the Owner any responsibility for the accuracy and for proper fit, functioning or performance of any phase of the work included in the contract.

D. The Contractor shall submit Shop Drawings for all fabricated work and for all manufactured items required to be furnished in the Contract in accordance with the General Provisions and as specified herein. Shop Drawings shall be submitted in sufficient time to allow at least twenty-one (21) calendar days after receipt of the Shop Drawings from the Contractor for checking and processing by the Engineer/Architect.

E. Contractor shall review and approve all Shop Drawings prior to submission. Contractor's approval shall constitute a representation to Owner and Engineer/Architect that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that Contractor has reviewed or coordinated each Shop Drawing or sample with the requirements of the work and the Contract Documents.

- F. It is the responsibility of each Prime Contractor to furnish to all other Prime Contractors and especially the General Construction Contractor reviewed Shop Drawings for guidance in interfacing the various trades; i.e., sleeves, inserts, anchor bolts, terminations, and space requirements.
- G. No work shall be performed requiring Shop Drawings until same have been reviewed by Engineer/Architect.
- H. Accepted and reviewed Shop Drawings shall not be construed as approval of changes from Contract plan and specification requirements.

1.2 IDENTIFICATION OF SUBMITTALS

- A. Submittal Preparation: Mark each submittal with a permanent label or page for identification. Provide the following information on the label for proper processing and recording of action taken:
 - 1. Location
 - 2. Project Name
 - 3. Contract
 - 4. Name and Address of Engineer/Architect
 - 5. Name and Address of Contractor
 - 6. Name and Address of Subcontractor
 - 7. Name and Address of Supplier
 - 8. Name of Manufacturer
 - 9. Number and Title of appropriate Specification Section
 - 10. Drawing Number and Detail References, as appropriate.
 - 11. Submittal Sequence or Log Reference Number.
 - 12. Provide a space on the label for the Contractor's review and approval markings and a space for the Engineer/Architect's "Action Stamp".

1.3 GROUPING OF SUBMITTALS

- A. Unless otherwise specifically permitted by the Engineer, the Contractor shall make all submittals in groups containing all associated items so that information is available for checking each when it is received.
- B. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.
- C. Review will be performed on a complete submittal as received. The Engineer will not divide a submittal and take separate action on each portion.

1.4 TIMING OF SUBMITTALS

- A. Shop Drawings shall be submitted in proper sequence and with due regard to the time required for checking, transmittal and review so as to cause no delay in the work. The Contractor's failure to transmit appropriate submittals to the Engineer/Architect sufficiently in advance of the work shall not be grounds for time extension.

- B. Review of submittals by Engineer will be made and responded to within 21 calendar days after receipt of same unless additional information is required. In lieu of returning a document when supplemental information is required, a written hold notice may be issued which will suspend the review period until a response is received.
- C. If review of a submittal is dependent upon information to be provided via another submittal which has not been received, the first submittal will be held until the second submittal is received. Written notice will be provided to the Contractor regarding the hold status of the first submittal.

1.5 SHOP DRAWINGS

- A. Shop drawings include specially-prepared technical data for this project including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects. Shop drawings submitted for all manufactured or fabricated items. See individual technical sections for specialized requirements.
- B. Shop Drawings shall be sufficiently clear and complete to enable the Engineer/Architect and Owner to determine that items proposed to be furnished conform to the specifications and that items delivered to the site are actually those that have been reviewed.
- C. Contractor shall make all shop drawings accurately to scale and sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
- D. Shop drawings shall be checked, approved, and stamped by Contractor in accordance with the General Conditions before transmittal to Engineer for review and approval.
- E. Complete shop drawings and descriptive data shall be submitted on all manufactured or fabricated items prior to 25% completion of the work.
- F. It is anticipated that electronic submissions of shop drawings will be acceptable. The Contractor shall coordinate with the Engineer to establish a consistent submission process to be applied throughout the project. Where size and complexity warrant, the Engineer may request one full size, hard copy, of specific shop drawings may be requested to supplement and support review. An electronic copy of the shop drawing will be returned to the Contractor if approved. If the shop drawing is not approved, an electronic corrected copy and/or summary of comments will be returned to the Contractor for use in resubmittal.
- G. It is the Contractor's responsibility to provide other affected contractors and/or sub-contractors with copies of approved shop drawings.
- H. At the time of each submission, Contractor shall in writing identify any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.

- I. Drawings shall be clean, legible and shall show necessary working dimensions, arrangement, material finish, erection data, and like information needed to define what is to be furnished and to establish its suitability for the intended use. Specifications may be required for equipment or materials to establish any characteristics of performance where such are pertinent. Suitable catalog data sheets showing all options and marked with complete model numbers may, in certain instances, be sufficient to define the articles which it is proposed to furnish.

1.6 REVIEW PROCEDURE

- A. Engineer/Architect will review with reasonable promptness all properly submitted Shop Drawings. Such review shall be only for conformance with the design concept of the Project and for compliance with the information given in the plans and specifications and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident thereto.
- B. The review of a separate item as such will not constitute the review of the assembly in which the item functions. The Contractor shall submit entire systems as a package.
- C. All Shop Drawings submitted for review shall be stamped with the Engineer/Architect's action and associated comments.
- D. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Engineer/Architect will review each submittal, mark to indicate action taken, and return accordingly. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Engineer/Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. If Shop Drawings are found to be in general compliance, such review will be indicated by marking the first statement.
 2. If only minor notes in reasonable number are needed, the Engineer/Architect will make same on all copies and mark the second statement. Shop Drawings so marked need not be resubmitted.
 3. If the submitted Shop Drawings are incomplete or inadequate, the Engineer/Architect will mark the third statement, request such additional information as required, and explain the reasons for revision. The Contractor shall be responsible for revisions, and/or providing needed information, without undue delay, until such Shop Drawings are acceptable. Shop Drawings marked with No. 3 shall be completed resubmitted.
 4. If the submitted Shop Drawings are not in compliance with the Contract Documents, the Engineer/Architect will mark the fourth statement. The Contractor will be responsible to submit a new offering conforming to specific products specified herein and/or as directed per review citations.
- E. No submittal requiring a Change Order for either value or substitution or both, will be returned until the Change Order is approved or otherwise directed by the Owner.

1.7 COLORS AND PATTERNS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product Contractor shall submit accurate color charts and pattern charts to Engineer for Owner's review and selection.
- B. Unless all available colors and patterns have identical wearing capabilities and are identically suited for the installation, Contractor shall completely describe the relative capabilities of each.

1.8 SAMPLES AND FIELD MOCK-UPS

- A. Contractor shall provide samples and field mock-ups where noted or specified.
- B. Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.
- C. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product and full range of color, texture and pattern.
- D. Samples shall have labels firmly attached, bearing the following information:
 - 1. Name of project.
 - 2. Description of product and finish.
 - 3. Name of Contractor.
 - 4. Trade name and number of product.
 - 5. Standards met by the product.
- E. Approval of samples must be obtained prior to proceeding with any work affected by material requiring sample approval.
- F. Samples, unless otherwise noted, become the property of the Owner.
- G. In situations specifically approved by the Engineer, the retained sample may be used in the construction as one of the installed items.
- H. Field mock-ups:
 - 1. Contractor shall erect field mock-ups at the project site in a location acceptable to the Owner and the Engineer.
 - 2. When accepted by the Engineer, the mock-up will become the basis for comparison of the actual work.
 - 3. Remove mock-up at conclusion of the work if it was not incorporated into the work.

1.9 PRODUCT DATA

- A. Contractor shall provide product data as required to supplement shop drawings.

- B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by Contractor to illustrate a material, product or system for some portion of the work.
- C. Contractor shall collect required product data into one submittal for each unit of work or system.
- D. Contractor shall include manufacturer's standard printed recommendations for application and use, compliance with standards, performance characteristics, wiring and piping diagrams and controls, component parts, finishes, dimensions, required clearances, and other coordination requirements.
- E. Contractor shall mark each copy of standard printed data to identify pertinent products, models, options, and other data.
- F. Contractor shall supplement manufacturer's standard data to provide information unique to the work.
- G. Contractor shall identify within the data variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work.

1.10 RESUBMITTAL REQUIREMENTS

- A. Contractor shall revise and resubmit submittals as required.
- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data and resubmit as specified for initial submittal.
 - 2. Itemize in a cover letter any changes which have been made other than those requested by the Engineer.
- C. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of a submittal item. The Owner reserves the right to withhold monies due the Contractor to cover additional costs of the Engineer's review beyond the second submittal.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. Manufactured articles, materials and equipment shall be stored, commissioned, operated, applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer, unless specified to the contrary.
- B. Whenever specifications call for work to be performed, or materials to be installed in accordance with the manufacturer's printed instructions or directions, Contractor shall furnish copies as required for shop drawings of those instructions or directions to Engineer before installing the material or performing the work.
- C. Contractor shall identify with the submittal any conflicts between manufacturers' instructions and Contract Documents.

1.12 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Engineer for review.
- B. Contractor shall furnish copies as required for shop drawings of those certificates to Engineer before installing the material or performing the work.
- C. Certificates shall indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- D. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 013300

SECTION 014100 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. OSHA Requirements
- B. Roadway Limits

1.2 OSHA REQUIREMENTS

- A. All work, including site safety, equipment, materials, and fabricated items provided under the Contract, shall comply with the provisions of the "Occupational Safety and Health Act" (OSHA), and all other applicable federal, state, county and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents. Where any of these are in conflict, the more stringent requirements shall be followed. Job site safety shall be the sole responsibility of the Contractor.
- B. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth herein.

1.3 ROADWAY LIMITS

- A. Contractor shall comply with posted roadway weigh restrictions including any seasonal weight restrictions established by the governing highway authority.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 014100

SECTION 014300 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Survey and field engineering.
- B. Quality control.
- C. Submittals.
- D. Project record documents.

1.2 QUALITY ASSURANCE

- A. Employ a Professional Surveyor registered in the State of Ohio and acceptable to Owner, to perform survey work of this section.
- B. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.3 SUBMITTALS FOR REVIEW

- A. Submit name, address, and telephone number of Surveyor before starting work.
- B. On request, submit documentation verifying accuracy of survey work.
- C. Submit a certificate signed by the Professional Surveyor, that the elevations and locations of the Work are in conformance with Contract Documents.

1.4 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses. The project record documents shall be available at every progress meeting for verification that the actual work is being properly recorded.
- B. Submit Record Documents under provisions of Section 017800.

1.5 EXAMINATION

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Engineer of any discrepancies discovered.

1.6 SURVEY REFERENCE POINTS

- A. Contractor to locate and protect survey control and reference points.
- B. Control datum for survey that is indicated on Drawings.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to the Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to the Engineer.

1.7 SURVEY REQUIREMENTS

- A. Provide field survey services. Utilize recognized survey practices.
- B. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, and ground floor elevations.
 - 4. All other proposed work as shown on the Drawings.
- C. Periodically verify layouts by same means.

1.8 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. Perform surveys to determine quantities of unit cost, including control surveys to establish measurement reference lines at request of Owner or Engineer. Notify Owner and Engineer prior to starting work.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 014300

SECTION 014500 - QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Tolerances.
- D. Photographic Records
- E. Manufacturers' field services and reports.
- F. Manufacturer's certificates.
- G. Testing services.

1.2 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Contractor shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Contractor shall comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Contractor shall comply with specified standards as a minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Work shall be performed by persons qualified to produce workmanship of specified quality.
- F. Contractor shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.

- C. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 TOLERANCES

- A. Contractor shall monitor tolerance control of installed products to produce acceptable work and shall not permit tolerances to accumulate.
- B. Contractor shall comply with manufacturer's tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Contractor shall adjust products to appropriate dimensions; position before securing products in place.

1.5 PHOTOGRAPHIC RECORDS

A. Scope of Work

1. The Contractor shall take and log pre and post digital photography of the installation.
2. One pre-construction photo shall document the serial number and final read of the old meter/register. Customer address shall also be photographed for each meter.
3. The final read and documentary photo shall be provided to the OWNER for billing purposes in an electronic format for ease of billing.
4. Format of the photos shall be acceptable by Owner in a format readily accessible.
5. The Contractor shall take and log latitude and longitude of each MTU location.
6. Photos within a private property shall be limited to the meter installation area.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification sections or when requested by Engineer, Contractor shall require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions of surfaces and installation, and quality of workmanship.
- B. Contractor shall submit qualifications of observer to Engineer 30 days in advance of required observations.
- C. Contractor shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Contractor shall submit report in duplicate within 30 days of observation to Engineer for information.

1.7 MANUFACTURERS' CERTIFICATES

- A. When required by specified sections, submit three copies of manufacturer's certificates that certify the products meet or exceed specified requirements.

1.8 TESTING SERVICES

- A. When required by specified sections, Contractor shall appoint, employ and pay for specified services of an independent firm to perform testing.
- B. The independent firm will perform tests and other services specified in individual specification sections and as required by the Engineer.
- C. Testing and source quality control may occur on or off the project site. Perform offsite testing as required by the Engineer or the Owner.
- D. Reports will be submitted by the independent firm to the Engineer and Contractor indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing does not relieve Contractor to perform Work to contract requirements.
- G. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions of the Engineer. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 014500

SECTION 015000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:

1. Temporary utilities.
2. Barriers.
3. Tree removal and protection.
4. Contractor office and storage shed(s).
5. Protection of installed work.
6. Temporary support facilities.
7. Removal of utilities, facilities, and controls.
8. Dust control.
9. Water, erosion and sediment control.
10. Noise control.
11. Traffic control.
12. Site security.
13. Site cleanup.

B. Contractor shall arrange for and provide temporary facilities as specified herein and as required for proper and expeditious prosecution of the Work.

C. Contractor shall pay all costs, except as otherwise specified, until final acceptance of the Work unless Owner makes arrangements for use of completed portions of the Work after substantial completion in accordance with the provisions of the General Conditions.

D. Contractor shall make all temporary connections to utilities and services in locations acceptable to Owner and local authorities having appropriate jurisdiction.

1. Furnish all necessary labor and materials.
2. Make all installations in a manner subject to the acceptance of such authorities and Owner.
3. Maintain such connections.
4. Remove temporary installation and connection when no longer required.
5. Restore services and sources of supply to proper operating conditions.

1.2 TEMPORARY UTILITIES

A. Temporary Lighting

1. Provide lighting as required for the various trades and the work being performed.

B. Temporary Sanitary Facilities

1. Provide and maintain required facilities and enclosures.
2. Provide sufficient number for number of workmen and women employed. Locate near work areas. Perform regular maintenance as needed to control odors.
3. At the end of construction, remove facilities or return existing facilities to same or better condition as originally found.

C. Temporary Fire Protection

1. Contractors who maintain or provide an enclosed shed or trailer shall provide and maintain in operating order in each shed or trailer a minimum of one fire extinguisher. More extinguishers shall be provided as necessary. Fire extinguishers shall be minimum dry chemical, nonfreezing type, UL rating 2A-30BC, with 10-pound capacity for Class A, B and C fires.

1.3 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction activities and demolition.
- B. Provide barricades required by governing authorities for public rights-of-way.
- C. Protect vehicular traffic, stored materials, sites, and structures from damage.

1.4 TREE REMOVAL AND PROTECTION

- A. No tree removal will be permitted without permission of the Owner or Engineer.
- B. Existing trees will be protected through construction.
- C. Prior to initiation of construction, the Contractor and Owner shall walk the site in an effort to designate any trees that may require to be trimming or removal to facilitate the work. A barrier will be placed at an appropriate distance from the trunks and root systems of the trees to remain.
- D. Soil and other materials will not be stored next to or within the dripline of trees.
- E. The Contractor shall repair all injuries to bark, trunks, limbs, and roots of remaining vegetation by properly dressing, cutting, bracing, and painting using only approved tree surgery methods, tools, and materials.
- F. Selective pruning of tree limbs prior to initiation of construction should only be used within the established construction work limits where removal is required for construction activities.

1.5 CONTRACTOR OFFICE AND STORAGE SHED(S)

- A. Contractor shall provide facilities to meet Contractor's needs.

- B. Provide telephone as required for Contractor's needs. At a minimum, Contractor shall maintain telephone service to the project site to facilitate communication with site supervisory personnel.
- C. Maintain a copy of the Contract Documents for the specific use of marking to reflect the construction records. Clearly indicate in red the modifications or alterations to the original documents. Attach supporting documentation as necessary. The Contractor shall continually update these documents.
- D. Provide storage areas and sheds of size to meet storage requirements for products of individual sections, allowing for access and orderly provision for maintenance and for observation of products to meet requirements of Section 016000 – Materials and Equipment.

1.6 ENGINEER'S FIELD OFFICE

- A. None Required.

1.7 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
- C. Prohibit traffic from landscaped areas.

1.8 SUPPORT FACILITIES

- A. Contractor shall provide whatever facilities and services which may be needed to properly support primary construction processes and meet compliance requirements and governing regulations.
- B. Contractor shall not use permanent facilities except as otherwise indicated, unless authorized by Owner.

1.9 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials just prior to final completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore existing facilities used during construction to specified, or to original or better condition.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 DUST CONTROL

- A. Contractor shall execute the Work by methods to minimize raising dust from construction operations.
- B. Contractor shall provide positive means to prevent airborne dust from dispersing into atmosphere.

3.2 WATER, EROSION AND SEDIMENT CONTROL

- A. Contractor shall grade site to drain and shall maintain excavations free of water. Provide, operate and maintain pumping equipment.
- B. Contractor shall protect site from puddling or running water.
- C. Contractor shall provide erosion control measures as necessary to control discharge of sediment laden water to surface waters and wetlands.
- D. Except as provided in the Contract Documents, overland discharge of water from dewatering operations shall not be allowed. Depending on water quality, such water shall either be piped directly to the surface water or shall be directed to sedimentation basins or other such structures or features prior to discharge to surface waters so as not to cause damage to existing ground and improvements, erosion, or deposition in the discharge area.
- E. Contractor shall use jute or synthetic netting, silt fences, straw bales, dikes, channels and other applicable measures to prevent erosion of soils disturbed by its construction operation.
- F. Restoration of the site shall proceed concurrently with the construction operation. See Drawings and Specifications for erosion control measures in addition to that which may be required above.

3.3 NOISE CONTROL

- A. Provide methods, means and facilities to minimize noise produced by construction operations.

3.4 TRAFFIC CONTROL

- A. Contractor shall be responsible for providing all signs, barricades, flagmen and other traffic control devices in the construction zone.
- B. All traffic control measures shall meet the requirements of the Ohio Manual of Uniform Traffic Control Devices.

- C. Do not close or obstruct roadways without approval of the Owner.
- D. Maintain two-way traffic on streets at all times unless the Owner and the governing agency authorize one-way traffic for given areas and during specific operations.
- E. Conduct construction operations with minimum interference to roadways.

3.5 SITE SECURITY

- A. Contractor shall have the sole responsibility of safeguarding the Site perimeter to prevent unauthorized entry to the Site throughout the duration of the Project. Contractor shall at all times provide such permanent and temporary fencing or barricades or other measures as may be necessary to restrict unauthorized entry to its construction area including construction in public right-of-way or easements. Site security measures shall include safeguards against attractive nuisance hazards as a result of construction activity.
- B. Contractor shall at all times be responsible for the security of the Work including materials and equipment. Owner will not take any responsibility for missing or damaged equipment, tools, or personal belongings. Contractor shall have the sole responsibility of safeguarding the Work and the Site throughout the duration of the Project.

3.6 SITE CLEANUP

- A. Contractor shall cleanup the Site and remove all rubbish on a weekly basis unless a more frequent interval is warranted by the volume or type of rubbish present.
- B. Contractor shall cleanup public streets and highways and remove any dirt, mud, or other materials due to project traffic on a daily basis and shall comply with all local and state ordinances and permit regulations.

END OF SECTION 015000

SECTION 016000 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Contractor shall be responsible for the delivery, handling, storage and protection of all material and equipment required to complete the Work as specified herein.
- B. Related Sections and Divisions: Specific requirements for the handling and storage of material and equipment are described in other sections of these Specifications.

1.2 RELATED SECTIONS

- A. Bid Documents - Instructions to Bidders: Product options and substitution procedures.
- B. Section 013300 - Submittals

1.3 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Provide interchangeable components of the same manufacturer, for similar components.
- C. When any construction deviations from the Drawings and/or Specifications necessary to accommodate equipment supplied by Contractor result in additional costs to the Contractor or other contractors, such additional costs shall be borne by the Contractor. Contractor shall also pay any additional costs necessary for revisions of Drawings and/or Specifications by the Engineer.
- D. Each major component of equipment shall bear a nameplate giving the name and address of the manufacturer and the catalog number or designation.

1.4 TRANSPORTATION AND HANDLING

- A. Materials, products and equipment shall be properly containerized, packaged, boxed and protected to prevent damage during transportation and handling.
- B. Contractor shall not overload any portion of the structure in the transporting or storage of materials.
- C. Contractor shall not damage other construction by careless transportation, handling, spillage, staining or impact of materials.

- D. Contractor shall provide equipment and personnel to handle products, including those provided by Owner, by methods to prevent soiling and damage.
- E. Contractor shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging and surrounding surfaces.
- F. Contractor shall handle products by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

1.5 DELIVERY AND RECEIVING

- A. Contractor shall arrange deliveries of products in accordance with the Progress Schedule, allowing time for observation prior to installation.
- B. Contractor shall coordinate deliveries to avoid conflict with the Work and conditions of the Site; limitations on storage space; and availability of personnel and handling equipment.
- C. Contractor shall deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.
- D. Contractor shall clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.
- E. Immediately upon delivery, Contractor shall inspect shipment to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Accessories and installation hardware are correct.
 - 4. Containers and packages are intact and labels legible.
 - 5. Products are protected and undamaged.

1.6 STORAGE AND PROTECTION

- A. Contractor shall store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact and legible.
- B. Equipment Manufacturer shall coordinate with Contractor to clarify storage requirements for equipment to be delivered to the site. Coordination shall be completed in advance of the projected delivery date to assure adequate facilities will be available for protection of the equipment.
- C. In enclosed storage, Contractor shall:
 - 1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.

2. Maintain temperature and humidity within ranges stated in the manufacturer's instructions.
3. Provide ventilation for sensitive products as required by manufacturer's instructions.
4. Store unpacked and loose products on shelves, in bins or in neat groups of like items.
5. Store solid materials such as insulation, tile, mechanical and electrical equipment, fittings, and fixtures under shelter, in original packages, away from dampness and other hazards.
6. Store liquid materials away from fire or intense heat and protect from freezing.

D. At exterior storage, Contractor shall:

1. Store unit materials such as concrete block, brick, steel, pipe, conduit, door frames and lumber off ground, out of reach of dirt, water, mud and splashing.
2. Store tools or equipment that carry dirt outside.
3. Store large equipment so as to not damage the Work or present a fire hazard.
4. Cover products subject to discoloration or detention from exposure to the elements, with impervious sheet material and provide ventilation to avoid condensation.
5. Completely cover and protect equipment or material that is prime coated or finish painted with secured plastic or cloth tarps. Store out of reach of dirt, water, mud and splashing.
6. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
7. Provide surface drainage to prevent erosion and ponding of water.
8. Prevent mixing of refuse or chemically injurious materials or liquids.
9. Cover aggregates such as sand and gravel in cold wet weather.
10. Remove all traces of piled bulk materials at completion of work and return site to original or indicated condition.

1.7 MAINTENANCE OF STORAGE

- A. Contractor shall periodically inspect stored products on a scheduled basis.
- B. Contractor shall verify that storage facilities comply with manufacturer's product storage requirements, and verify that the manufacturer's required environmental conditions are maintained continually.
- C. Contractor shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of the Contract Documents.
- D. Contractor shall perform scheduled maintenance of equipment in storage as recommended by the manufacturer. A record of the maintenance shall be kept and turned over to the Engineer when the equipment is installed.

1.8 INSTALLATION REQUIREMENTS

- A. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise noted.
- B. After installation, Contractor shall protect all materials and equipment against weather, dust, moisture, and mechanical damage.
- C. Contractor shall be responsible for all damages that occur in connection with the care and protection of materials and equipment until completion and final acceptance of the Work by the Owner. Damaged material and equipment shall be immediately removed from the Site.

1.9 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.10 SUBSTITUTIONS AFTER NOTICE TO PROCEED

- A. Engineer will consider requests for Substitutions only within 45 days after date of Notice to Proceed.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the Substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
 - 6. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

1.11 SUBSTITUTION SUBMITTAL PROCEDURE

- A. Submit in accordance with Section 013300 - Submittals.
- B. The Engineer will notify Contractor, in writing, of decision to accept or reject request.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 016000

SECTION 017800 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Operation and maintenance data.
- E. Warranties.
- F. Spare parts and maintenance materials.

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner's inspection.
- B. Provide submittals to Owner that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. It is the Contractor's responsibility to completely clean up the construction site at the completion of the Work.

1.4 ADJUSTING

- A. Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

1.5 OPERATION AND MAINTENANCE DATA

- A. Provide per Section 017823.

1.6 WARRANTIES

- A. Contractor shall provide warranties beyond one-year warranty as required by technical sections and as follows:
 - 1. Provide duplicate notarized copies of equipment warranty.

2. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- B. Include in the Operation and Maintenance Manual.
- C. Submit prior to request for Substantial Completion.
- D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Contractor shall provide spare parts and maintenance materials as outlined in the specification sections related to the equipment supplied.
- B. Include in the Operation and Maintenance Manual.
- C. Submit prior to final Application for Payment.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 017800

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Format and content of manuals.
- B. Schedule of submittals.

1.2 RELATED SECTIONS

- A. Section 013300 - Submittals: Submittals procedures; Shop drawings, product data, and samples.
- B. Section 016000 - Material and Equipment: Systems demonstration.
- C. Section 017800 - Contract Closeout: Contract Closeout Procedures; Project Record Documents.
- D. Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.4 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8-1/2 x 11 inch three-ring binders with hardback, cleanable, plastic covers. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project; identify subject matter of contents.
- D. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
- E. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 24-pound paper.

- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.5 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer, subconsultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- E. Type Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Bind in copy of each.

1.6 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual product specification Sections.

1.7 SUBMITTALS

- A. Submit one copy of preliminary draft or proposed format and outline of content before start of Work. Engineer will review draft and return copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes in final form 15 days prior to final inspection. Copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.

D. After approval of draft by Engineer, Contractor shall submit three copies to Owner.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 017823

SECTION 017839 – PROJECT RECORDS, DRAWINGS

PART 1 - GENERAL

1.1 RECORD DRAWINGS

- A. The Contractor shall furnish an authentic set of marked-up drawings showing the installation records associated with the project. The drawings shall be delivered to the Owner/Engineer immediately after final acceptance by the Owner.
- B. The Contractor shall furnish dimensioned drawings indicating locations of all underground mechanical and electrical facilities.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 RECORD DRAWING CONTENT

- A. The Contractor shall furnish record drawings associated with each new meter installation.
- B. At a minimum, the record drawing information for each meter location shall contain the following:
 - 1. Service Address
 - 2. Existing Service Line Material / Size / Depth
 - 3. Distance of Coupling from Curb Box (Meter Box Inlet side)
 - 4. New Service Line Material / Size / Depth
 - 5. Distance of Coupling from Meter Box Outlet
 - 6. Meter Serial Number
 - 7. Meter Register Reading at Installation
 - 8. Special Notes identified as a part of the installation

END OF SECTION

SECTION 310000 – EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil Materials
 - a. Sub base Material
 - 1) Building porous fill
 - 2) Pavement sub base course
 - b. Backfill and fill materials
 - c. Drainage fill
 - d. Impervious fill
 - e. Topsoil
2. Protection
 - a. Existing improvements protection
 - 1) Salvageable improvements
 - 2) Existing utilities protection
3. Site Clearing
 - a. Clearing and grubbing
 - b. Topsoil stripping
4. Excavation
 - a. Excavation classifications
 - b. Shoring, bracing, and underpinning
 - 1) Underpinning
 - 2) Shoring and bracing
 - c. Dewatering
 - d. New structures
 - e. Pavements
 - f. Ditches
 - g. Pipe Trenches
5. Compaction
6. Backfill and Fill
 - a. Preparation for backfill
 - b. Ground surface preparation for fill
 - c. Placement and compaction
7. Grading
 - a. Grading at existing trees
 - 1) Lowering grades at existing trees
 - 2) Raising grades at existing trees
 - a) Minor fills at existing trees
 - b) Moderate fills at existing trees
 - b. Grading outside building lines
 - c. Grading surface of fill under building slabs

1.2 RELATED SECTIONS

- A. Related work specified elsewhere includes, but is not limited to:
 - 1. Section 311100, Clearing and Grubbing
 - 2. Section 312323, Backfill

- B. All embankment and fill shall conform to ODOT Item 203.

1.3 SUBMITTALS

- A. All submittals shall conform completely to the requirements of Section 017800, Submittals.
- B. Site Plan showing:
 - 1. Vegetation removal limits.
 - 2. Areas for temporary construction and field offices.
- C. Project Record Documents:
 - 1. Accurately record actual locations of capped and active utilities and subsurface construction.
- D. Reference Submittals
 - 1. Material Certification
 - a. Building porous fill
 - b. Gravel fill
 - c. Pavement subbase course
 - d. Other material certification as required.
 - 2. Test Reports (if required by Engineer)
 - a. General
 - 1) Test soil materials proposed for use in the Work and promptly submit test result reports.
 - 2) The Engineer may require one optimum moisture-maximum density curve for each type of soil encountered in sub grade and fills under:
 - a) Building slabs
 - b) Foundations
 - c) Paved areas.
 - 3. Determine maximum densities in accordance with ASTM D698.
 - 4. The Engineer will determine the suitability of materials to be used as fill.
 - 5. For borrow materials, perform a mechanical analysis (AASHO T88), plasticity index (AASHO T91), and a moisture-density curve (AASHO T99 or ASTM DG98).
 - a. Backfill and fill materials
 - b. Verification of each footing sub grade
 - c. Field density test reports.
 - d. One optimum moisture-maximum density curve for each type of soil encountered.
 - e. Other tests as required
 - f. If a soil testing is not performed, contractor assumes responsibility for adequate foundations for each structure.

1.4 JOB CONDITIONS

- A. Minimize production of dust due to operations; do not use Water if it will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- B. Comply with other requirements specified in Section 017700.
- C. Use of Explosives: The use of explosives will not be permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Soil Materials:
 - 1. Gravel Fill: Naturally or artificially graded mixture of crushed limestone or gravel. The gradation shall conform to ASTM C33 size # 57.
 - 2. Pavement Subbase Course: ODOT Item 304.
 - 3. Backfill and Fill Materials:
 - a. Provide soil materials for backfill and fill free of clay, debris, waste, frozen materials, vegetation and other deterious matter.
 - 4. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and zero to 5 percent passing a No. 8 (2.36-mm) sieve.
- B. Rock or gravel shall not be larger than 3" in any direction.
- C. Backfill and fill shall consist of materials classified as "SC" or coarser by ASTM D2487.
- D. Materials finer than "SC" may be used when a registered Geotechnical Engineer is engaged to analyze proposed fill material for its suitability as fill material and its ability to be compacted in accordance with this section. The material shall be such that the required compaction percentages of maximum density, listed in paragraph "Compaction" in Part 3 of this Section, can be reasonably achieved.
 - 1. Materials classified as "ML" or finer by ASTM D2487 shall not be permitted, except when a registered Geotechnical Engineer is engaged.
 - 2. Alternate and Fill Material
 - a. Contractor may, at his option, substitute a specially manufactured material upon approval.
 - b. The material shall have a cement base and is combined with other admixtures, fly ash, or other materials specifically designed for the product.
 - c. The material must have been successfully used in the completion of mass fills having a minimum of 20,000 cubic yards in the past 5 years.
 - d. Similar materials must have been successfully used for at least 10 years.
 - e. Material must have a minimum cast density of 30 pcf and a minimum compressive strength of 4,000 psi.
 - f. Material shall be Elastize II EF, or approved equal.

PART 3 - EXECUTION

3.1 PROTECTION

A. General

1. Protection of Persons and Property

- a. Barricade open excavations occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
- b. Protect structures, utilities, sidewalks, pavements, and other facilities from damages caused by settlement, lateral movement, undermining, washout and other hazards created by excavation operations.

B. Existing Improvements Protection

1. General

- a. Provide protection necessary to prevent damage to existing improvements indicated to remain in place.
- b. Protect improvements on adjoining properties and on the Owner's property.
- c. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

2. Existing Utilities Protection

- a. Locate existing underground utilities in the areas of Work. Utilities on plans are shown to the best available information but are not warranted to be accurate. Contractor shall call the Ohio Utilities Protection Services and have utilities located 48 hours prior to any construction. If utilities are to remain in place, provide adequate means of protecting during excavation operations.
- b. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the Engineer or Owner immediately. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the Utility Owner.
- c. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Engineer or Owner and then only after acceptable temporary utility services have been provided.

3.2 SITE CLEARING

A. Clearing and Grubbing

1. Clear the Site of trees, shrubs and other vegetation, except for that indicated to be left standing.
2. Trees, Shrubs and Plants
 - a. Remove all trees, shrubs and plants.
 - b. Remove trees, shrubs and plants not designated to remain.
 - c. Remove roots larger than 3" in diameter and matted roots existing in an area within 5' of construction.
 - d. Remove larger than 3" depth to 18" below sub grade in paved areas.
 - e. Remove roots larger than 3" to sub grade in turf areas.
 - f. Completely remove stumps, roots, and other debris.
3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 - a. Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to a density equal to adjacent original ground.

A. Topsoil Stripping

1. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable materials.
2. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with the underlying subsoil or other objectionable material.
3. Strip topsoil to its entire depth from areas to be graded and areas to be occupied by building, roadways, parking areas, walks, etc.
4. Stockpile topsoil in storage piles. Construct storage piles to freely drain surface water. Cover storage piles to prevent windblown dust.

3.3 EXCAVATION

A. General

1. Excavation consists of the removal and disposal of materials encountered when establishing the required grade elevations.
2. Unauthorized excavation consists of removal of materials beyond indicated sub grade elevation or side dimensions without the specific direction of the Engineer.
 - a. Under footings, foundation bases, or retaining walls, unauthorized excavation may be filled by extending the indicated bottom elevation of the footing or base to the excavation bottom (Engineer must be notified and approval given before commencing), without altering the required top elevation. Lean concrete fill (1500 psi minimum) may be used to bring elevations to the proper position, only when acceptable to the Engineer and/or the Owner and when approval has been given.
 - b. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of the same classification, unless otherwise directed by the Engineer and/or the Owner.

B. Excavation Classifications: All excavation is unclassified.

C. Stability of Excavations

1. Slope the sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible either because of space restrictions or stability of material excavated.
2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
3. The maximum slope ratio from bottom edge of foundation to the next foundation and/or any other excavation shall be one (1) vertical to two (2) horizontal, except where approved by a registered Geotechnical Engineer to be less than a 1 to 2 slope.

D. Shoring and Bracing and Underpinning

1. General
 - a. Design and provide shoring and bracing and underpinning to comply with local codes and authorities having jurisdiction.
2. Shoring and Bracing
 - a. Provide materials for shoring and bracing, such as sheet piling, soldier beams, stringer, rakes, walers and cross-braces, etc., in good serviceable condition.

- b. Maintain shoring and bracing in excavations regardless of the period excavations will be open. Carry down shoring and bracing as the excavation progresses.
 - 1) Provide permanent steel sheet piling or pressure creosoted timber sheet piling wherever subsequent removal of sheet piling might permit the lateral movement of soil under adjacent structures. Cut-off tops as required and leave permanently in place.
- c. Excavations shall be shored and sheeted with members of sizes and arrangement sufficient to prevent injury to persons, damage to structure, injurious caving, or erosion; shoring, sheeting and bracing shall be removed as the excavations are backfilled; care shall be exercised to prevent injurious caving during the removal of the and/or sheeting.

E. Dewatering

- 1. Prevent surface water and subsurface or groundwater from flowing into the excavations and flooding the Project Site and surrounding area.
- 2. Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of sub grades and foundations. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey the water away from excavations.
- 3. Convey water removed from excavations and rainwater to collecting or runoff areas. Provide and maintain temporary drainage ditches and other diversions outside the excavation limits for each structure. Do not use trench excavations for Site utilities as temporary drainage ditches.

F. Material Storage

- 1. Stockpile excavated materials classified as satisfactory soil material where indicated by the Engineer or Owner, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
- 2. Locate and retain fill materials away from edges of excavations.
- 3. Dispose of excess soil material and waste materials as specified hereinafter.

G. Removal of Unsatisfactory Soil Materials

- 1. Excavate unsatisfactory soil materials encountered that extend below the required elevations, to the additional depth as indicated by the ENGINEER or Owner.
- 2. Such additional excavation, provided it is not due to the fault or neglect of the Contractor, shall be measured as indicated by the ENGINEER or Owner, and paid for as a change in the Work.

H. Cold Weather Protection

- 1. Protect excavation bottoms against freezing when the atmospheric temperature is less than 35 deg F.

I. Existing Improvements

- 1. General
 - a. Remove above-grade and below-grade improvements necessary to permit construction, and other Work as indicated.
 - b. Removal of abandoned underground piping or conduit interfering with construction is included under this Section.

2. Surface Structures
 - a. Remove buildings, curbs, gutters, walls, fences, walks, drives, etc., where indicated.
3. Subsurface Structures
 - a. Subsurface Structures Inside or Beneath New Structure.
 - 1) Remove during excavation where necessary to reach required elevations.
 - 2) Remove vertical projections and/or horizontal structures to a distance of 4'-0" below any part of new construction such as foundations, slabs, tie beams, grade beams and utilities.
 - 3) Existing horizontal surfaces below new construction shall be thoroughly fractured to ensure drainage.
 - b. Subsurface Structures Outside of New Structure and within 3' of New Footing Edges - Remove all horizontal and vertical structures.
 - c. Subsurface Structures Beyond 3' of New Footing Edges
 - 1) Remove structures to a level at least 2' below new finish grades.
 - 2) Horizontal surfaces existing below finished grade shall be thoroughly fractured to ensure drainage.
4. Abandoned Underground Utilities
 - a. Demolish and completely remove from the Site existing underground utilities indicated to be removed. Coordinate with local utility companies for shut-off of services if lines are active.
 - b. Any lines to be abandoned that extend beyond the excavation must be capped or plugged.
 - c. Abandoned underground utilities under structures to be constructed (concrete, masonry, cast iron, ceramic clay, etc.) that are no longer in use shall be filled solid with concrete, or remove and backfill as specified herein.
 - d. Close open ends of metallic conduit and pipe with threaded galvanized metal caps or plastic plugs, or other suitable method for the type of material and size of pipe. Do not use wood plugs.
 - e. Close open ends of concrete and masonry utilities with not less than 8" thick brick masonry bulkheads, constructed to completely fill the opening.
 - f. Wet brick before laying, and lay brick in mortar so as to form a full bed with ends and side joints in one operation and joints not more than 3/8" wide. Protect fresh masonry from freezing or from rapid drying and maintain protection until mortar has set.

J. New Structures

1. Conform to the elevations and dimensions shown on the Drawings, within a tolerance of $\pm 0.10'$, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction required, and for inspection.
2. In excavating for footings and foundations, take care not to disturb the bottom of the excavation. Excavate by hand to final grade just before reinforcement is placed. Trim bottoms to the required lines and grades to leave a solid base to receive concrete.

K. Pavements

1. Cut surface under pavements to comply with grades indicated.

- L. Ditches
 - 1. Cut ditches to cross-sections and grades as shown. Deposit excavated materials to prevent cave-ins or material falling or sliding into ditch. Keep ditches free of debris until final acceptance of the Work.

3.4 COMPACTION

- A. General: Control soil compaction during construction for compliance with the percentage of maximum density specified for each area classification.
- B. Percentage of Maximum Density Requirements
 - 1. In fill areas, provide not less than the following percentages of maximum density of soil material compacted at optimum moisture content, according to standard proctor ASTM D69B dry density.
 - a. Structures: Compact each 8" layer of backfill or fill material at a minimum 98% density. Fill shall be in compliance with tank manufacturer requirements for structural loads.
 - b. Building slabs and steps: Compact each 8" layer of backfill or fill material at 98% density
 - c. All other areas: No specific density requirements are listed. Finished construction must not settle appreciably. Contractor may be required to refill any settled areas.
 - 2. Contractor may be required, at the Engineer's discretion, to test the soil density.
- C. Moisture Control
 - 1. Where the sub grade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to the surface of sub grade, or layer of soil material, to prevent free water appearing on the surface during or subsequent to compaction operations.
 - 2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
 - 3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing, until the moisture content is reduced to a satisfactory value, as determined by moisture-density relation tests.

3.5 BACKFILL AND FILL

- A. General
 - 1. Place acceptable soil material in layers to required sub grade elevations, for each area classification listed below.
 - a. In all excavations: Excavated or borrow backfill and fill materials
 - b. Under grassed areas: Excavated or borrow backfill and fill materials.
 - c. Under walks and pavements: Approved sub base material.
 - 2. All soil materials shall be sampled and tested for compliance with all requirements of Part 2 of this Section.
- B. Preparation for Backfill
 - 1. Backfill excavations as promptly as the Work permits, but not until completion of the following:

- a. Acceptance by ENGINEER or Owner of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation
- b. Inspection, testing, approval, and recording locations of underground utilities
- c. Removal of concrete formwork
- d. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in a manner to prevent settlement of the structure or utilities, or leave in place if required.
- e. Removal of trash and debris
- f. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
- g. Do not backfill against walls until slab on grade and first framed floor is complete and concrete has attained its design strength.

C. Placement and Compaction

- 1. Place backfill and fill materials in layers not more than 8" in loose depth. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the soil material. Compact each layer to the required percentage of maximum density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- 2. Pipe backfill: Roadways, Sidewalks and Drive; 100% Standard Proctor compaction; lawn areas; 95% Standard Proctor compaction. Contractor shall place backfill materials evenly adjacent to structures, to the required elevations. Contractor shall take care to prevent wedging action and unequal horizontal pressures of the backfill against structures by placing the material uniformly on all sides of the structure to approximately the same elevation in each lift ($\pm 1'-0"$).
- 3. Where utility facilities and structures are supported in place, use special equipment and techniques as required to achieve the specified compaction under and around them.

D. Alternate Backfill and Fill Material

- 1. The installer shall be certified by the manufacturer of the material and approved by the Engineer.
- 2. All equipment used in batching, mixing, and placement must be approved by the manufacturer.
- 3. A representative of the manufacturer must be on site for the initial placement of materials and make any appropriate changes in operations.
- 4. Five (5) samples will be taken for testing from each 200 cubic yards of material placed. Testing will be conducted in accordance with Section 014500.

3.6 GRADING

- A. General: Uniformly grade areas within the limits of grading under this Section, including adjacent transition areas. Smooth finished surfaces within specified tolerances, with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Grading Outside Building Lines

1. Grade areas outside building lines to drain away from structures and to prevent ponding of water. Compact as specified.
 2. Finish the surfaces free from irregular surface changes, and as follows:
 - a. Grassed Areas: Finish areas to receive topsoil to within not more than 0.10' above or below the required sub grade elevations.
 - b. Walks: Shape the surface of areas under walks to line, grade and cross-section, with the finish surface not more than 0.10' above or below the required sub grade elevation.
 - c. Pavements: Shape the surface of areas under pavement to line, grade and cross-section indicated, with the finish surface not more than 1/2" above or below the required sub grade elevation, and graded to prevent ponding of water after rains. Include such operations as plowing, dicing, and any moisture or aerating required to provide the optimum moisture content for compaction. Fill low areas resulting from removal of unsatisfactory soil materials, obstructions, and other deleterious materials, using satisfactory soil material.
 - d. Ditches: Finish ditches to ensure proper flow and drainage. Conduct final rolling operations to produce a hard, uniform and smooth cross-section.
- C. Grading Surface Under Building Slabs
1. Grade the surface of fill under building slabs smooth and even, free of voids, compacted a specified, and to required elevation.
 2. Provide final grades within a tolerance of 1/4" when tested with a 10' straightedge; the maximum out-of-level tolerance for the entire length of grade for slabs in either direction shall be $\pm 2"$.

3.7 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 2. Place drainage course 6 inches or less in compacted thickness in a single layer.
 3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D698.

3.8 FIELD QUALITY CONTROL

- A. Compact each 8" layer of backfill to levels stated previously or fill material at 98% density Quality Control Testing Construction
 1. Testing service, if required by the Engineer, must inspect, and the Geotechnical Engineer must approve, existing ground surface, fill layers and sub grades before further construction Work is performed thereon. Tests will be taken as follows:
 - a. Footing Sub grade: For each stratum of existing soil on which footings will be placed, provide visual verification and any tests that are required to verify

that design bearing capacities have been met. This verification shall be made by a qualified Soil Engineer. The Engineer or Owner reserves the right to order more or fewer inspection tests as required.

- b. Paved Areas and Building Slab Subgrade: Make at least one field density test of the subgrade surface in cut areas for every 2,000 sq. ft. of paved area or building slab, but in no case less than three tests. In each compacted fill layer, make one field density for every 2,000 sq. ft. of overlaying building slab or paved area, but in no case less than three tests. The Engineer or Owner reserves the right to order more or less inspection tests as required.
2. If, in the opinion of the Engineer or Owner, based on reports of the testing service and inspection, the subgrade or fills, which have been placed, are below the specified density, provide additional compaction and testing at no additional expense to the Owner.
 - a. The results of the density tests shall be equal to or greater than the specified density except that 1 density test out of 5 consecutive density tests for the same area being tested may have a test result of 2% below specified density.

3.9 MAINTENANCE

A. Protection of Graded Areas

1. Protect newly graded areas from traffic and erosion and keep free of trash and debris.
2. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.

B. Reconditioning Compacted Areas

1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction. Use hand tamping for recompaction over underground utilities and under floor sub drains, if any.

3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Burning on Owner's Property: Not permitted.

B. Removal from Owner's Property: Remove all waste materials, including excavated material classified as unsatisfactory soil material, trash and debris, from the Owner's property and legally dispose of it.

END OF SECTION

SECTION 311100 – CLEARING AND GRUBBING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Removal of surface debris.
- B. Removal of trees, shrubs, and other plant life.
- C. Topsoil excavation.

1.2 RELATED SECTIONS

- A. Specifications sections related to this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Division 1 and all other applicable sections in this manual.

1.3 REGULATORY REQUIREMENTS

- A. Conform to all applicable and local codes for environmental requirements, disposal of debris, burning debris on site, use of herbicides, and other applicable items.
- B. Coordinate clearing work with utility companies.
- C. Work shall conform to the requirements of ODOT-CMS Item 201 Clearing and Grubbing.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Herbicide, if required shall conform to applicable and local codes per environmental requirements

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. Identify a waste area and/or salvage area for placing removed materials.

3.2 PROTECTION

- A. Locate, identify, and protect utilities that remain, from damage.

- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Do not disturb any area that is not necessary for completion of this project. Disturbance shall be in accordance with projects Storm Water Pollution Prevention Plan.
- D. Protect benchmarks, survey control points, and existing structures from damage or displacement. Wetlands areas are not to be disturbed.

3.3 CLEARING

- A. Clear areas required for access to site and execution of Work.
- B. Remove trees and shrubs within marked areas or as indicated. Remove stumps, main root ball, root system for complete removal of surface rock and other as indicated on drawings.
- C. Clear undergrowth and deadwood, without disturbing subsoil.
- D. Apply herbicide to remaining stumps to inhibit growth.

3.4 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.

3.5 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, re-landscaped, or re-graded, marked areas, entire site, without mixing with foreign materials.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion.
- D. Install perimeter silt fence around stockpile area to prevent erosion and sediment transport from occurring.
- E. Stockpiled topsoil shall be used for final grading around proposed improvements.

END OF SECTION 311100

SECTION 312316.13 - TRENCH EXCAVATING, BEDDING AND BACKFILL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: All trench excavations and fills to the lines and grades given for conduits, pipelines, etc. as required for proper completion of the work of this contract as shown on the Contract Drawings.
- B. The trench excavation work item in this contract shall include the removal, handling, rehandling, filling, and disposal of any and all materials (whether they be wet or dry) found unsuitable by the Engineer encountered within the limits of the work and the transportation and placing thereof, and shall include all pumping, bailing, draining, sheeting and shoring, backfill, refill and protection, and sand backfill, together with rolling and tamping where such is required by these specifications and is not specifically included in another item of work in this contract.
- C. Existing ground elevations of the work site(s) are shown by figures and/or by contours on the Contract Drawings. The contours and elevations of the present ground are believed to be reasonably correct, but do not purport to be absolutely so, and are presented only as an approximation. The Contractor shall satisfy himself, however, by his own actual examination of the site of the work, as to both the existing elevations and the amount of work required under this Section. If the Contractor is not willing to accept the ground surface elevations indicated upon the Drawings for payment, he shall notify the Engineer prior to the starting of any excavation work.

1.2 QUALITY ASSURANCE

- A. State and local code requirements shall control the construction specified herein.
 - 1. Ohio Department of Transportation (latest edition) for the products specified herein.
- B. Compaction testing shall be performed by a soil testing laboratory as specified in Section 014500. Testing shall be in accordance with ASTM Standards:
 - 1. C33 Specification for Concrete Aggregates.
 - 2. D698 Tests for Moisture – Design of Relations of Soils.
 - 3. D1556 Test for Density of Soil-in-Place by the Sand Cone Method.
 - 4. D2922 Test for Density of Soil and Soil Aggregates in Place by Nuclear Methods.

1.3 SUBMITTALS

- A. Certifications attesting that the composition analysis of pipe protection and material stone backfill materials meet specification requirements.
- B. Reference Submittals:
 - 1. Material Certification: Provide material certification for the items below:
 - 2. Granular backfill material.

3. Pipe bedding material.
4. Test Reports: Provide two copies of test reports.

1.4 JOB CONDITIONS

A. Control of Traffic

1. The Contractor shall provide all traffic control measures in accordance with the Ohio Department of Transportation as prescribed by the Ohio Manual of Uniform Traffic Control Devices.

B. Utility Services

1. The Contractor shall be responsible for maintaining all building utility service connections during the excavation and backfill process.
2. Immediately report to the utility company and the Engineer any break, leak or other damage to the lines or protective coatings made or discovered.
3. Allow free access to utility company personnel at all times for purposes of maintenance, repair and inspection.

PART 2 - PRODUCTS

2.1 PIPE BEDDING MATERIAL

- A. Granular material shall be crushed stone size as shown on Table 703-01 (ODOTCMS), No. 57, 6, 67, 68, or 7.

2.2 BACKFILL MATERIAL

- A. Backfill materials shall be either natural materials or granular materials as specified below.
 1. Type A. Granular material as specified in ODOT Item 304.
 2. Type B. Natural soil free from stones larger than 2 inches across their greatest dimension, top soil, vegetation, debris, rubbish or frozen material. When approved by the Contract Administrator, stones no larger than 8" across their greatest dimension may be deposited at least 2 feet above the top of the pipe.
 3. Type C. Low Strength Mortar as specified in ODOT Item 613.
- B. The backfill under and/or within five feet of existing or proposed roadways, paved shoulders, curbs, existing parking areas and drives shall be Type A granular material.

2.3 UTILITY MARKING TAPE

- A. Three (3) inch wide detectable utility marking tape bearing wording based upon the utility involved permanently printed on the tape. Tape color shall comply with the APWA color code.

2.4 TRACER WIRE

- A. Metallic detectable underground wire shall be located as shown on standard details. Tracer wire shall be 12 AWG Solid Copper Wire designed specifically for detecting underground utilities and direct burial use.
- B. At all valves, line beginnings and ends, the wire shall be clamped to a 3-foot-long piece of ½-inch rebar with a brass clamp. The rebar shall be placed vertically next to the valve or structure and extend 2 inches above finished grade.
- C. Tracer Wire shall be installed on top of pipe bedding or 12 inches above pipe crown on all force mains and non-metallic pipe.

PART 3 - EXECUTION

3.1 GENERAL PREPARATION

- A. Trench Excavation shall follow lines and grades as indicated on the plans. Exact positions shall be subject to and adjusted to interferences with related work and real-world conditions.
- B. Leave Trenches open until inspected by Engineer.
- C. Prior to beginning excavation, notify the Ohio Utilities Protection Service as required and notify all utilities on the project of the intended work schedule.
- D. Locate all existing utilities or other structure of critical location in advance of excavation.
- E. Uncover existing pipes and cables ahead of trenching for new work.
- F. Whenever existing items such as sewer pipes, water pipes, gas mains, culverts, or other pipes or structures are encountered in or near the lines of trenches being excavated, use proper care in preserving operation of such items intact and immediately repair any damage to such items.

3.2 MAINTENANCE AND PROTECTION OF TRAFFIC

- A. Coordinate the work to insure the least inconvenience to traffic and maintain traffic in one or more unobstructed lanes unless closing the street is authorized.
- B. Maintain access to all streets and private drives.
- C. Provide and maintain signs, flashing warning lights, barricades, markers, and other protective devices as required to conform with construction operations and to keep traffic flowing with minimum restrictions.
- D. Comply with state and local codes, permits and regulations.

3.3 CUTTING PAVED SURFACES

- A. Where installation of pipelines, miscellaneous structures, and appurtenances necessitate breaking a paved surface, make cuts in a neat uniform fashion forming straight lines parallel with the centerline of the trench.
- B. Protect edges of cut pavement during excavation to prevent raveling or breaking; square edges prior to pavement replacement.
- C. The requirement for neat line cuts, in other than state highways, may be waived if the final paving restoration indicates overlay beyond the trench width.

3.4 BLASTING

- A. Blasting will not be permitted.

3.5 METHOD OF TRENCH EXCAVATION

- A. All excavation shall be in open cut, unless otherwise permitted by the Engineer.
- B. Excavation shall be made to undisturbed finish subgrade six (6) inches below the bottom of the pipe or structure, unless otherwise shown on the Drawings.
- C. Where unsuitable bearing material is encountered the trench shall be excavated to an additional depth below the excavation for the bottom of the pipe barrel of six (6) inches for pipe of twenty-four (24) inches diameter and smaller and of nine (9) inches for pipe greater than twenty-four (24) inches in diameter. This additional excavation is to be refilled with suitable material in a satisfactory manner to provide the proper foundation for the conduit bed.
- D. Trench must be excavated with vertical sides from the bottom of the trench to one (1) foot above the top of the pipe, from which point sides may slope to ground surface, except that, in streets or roadways, trenches must be excavated with vertical sides to the top of the trench. Width of trench in the vertical section shall be excavated only as wide as necessary to provide free forking space on each side of the piping according to the size of the pipe and the character of the ground. In every case there shall be sufficient space between the pipe and the sides of the trench to make it possible to thoroughly compact the backfill around the pipe and to secure tight joints, but in no case more than one (1) foot on either side of pipe. In no case, however, shall the width of the trench at the top of the pipe exceed the dimensions as shown on the Contract Drawings. In no case will it be permitted to excavate pipe trenches with sides sloping to the bottom.
- E. Bottom of trench bed must give a full, firm but slightly yielding support to the lower section of the pipe and so that the pipe barrel is firmly supported in the cradle throughout its entire length, in such manner as to prevent any subsequent settlement of the pipe. Boulders or loose rocks which might bear against the pipe will not be permitted in the trench bottom or sides below two (2) feet above the pipe. Bell holes must be excavated to assure full length bearing of the pipe barrel.
- F. Trenches must be kept free from water until the material in the joints has sufficiently set.

- G. At no time shall the Contractor advance trenching operations more than 400 feet ahead of completed pipeline, including backfill, except as approved by the Engineer.
- H. Where the Contractor, by error or intent, excavates beyond the minimum required depth, the trench shall be brought to the required pipeline grade with bedding material.

3.6 SUPPORT OF EXCAVATION

- A. The Contractor shall be responsible for supporting and maintaining all excavations required hereunder utilizing a trench box and even to the extent of sheeting, shoring the sides and ends of excavations with timber or other satisfactory supports. If the sheeting, braces, shores, and stringers or walling timbers or other supports are not properly placed or are insufficient, the Contractor shall provide additional or stronger supports. The requirements of sheeting or shoring, or of the addition of supports, shall not relieve the Contractor of this responsibility for their sufficiency. All trench protection and sheeting and shoring must conform to the regulations of the Federal Occupations Safety and Health (OSHA) and will be subject to conform to their respective inspections. All orders of the OSHA representatives must be complied with by the Contractor.
- B. All timbering shall be removed where and when required and, upon its removal, all voids carefully and compactly filled. If any timber is ordered in writing to be left in place, it shall be cut-off as directed and will be paid for with a Change Order. No payment will be made for wasted ends or for timber left in place without specific written authorization by the Engineer.

3.7 REMOVAL OF WATER

- A. The Contractor shall pump out or otherwise remove and dispose of, as fast as it may collect any water, sewage, or any other liquids which may be found or may accumulate in the excavation, regardless of whether it be water or liquid wastes from his own contract or from existing conduits and works.
- B. Maintain pipe trenches dry until pipe has been jointed, inspected, and backfilled, and concrete work has been completed. Preclude trench water from entering pipelines under construction.
- C. Intercept and divert surface drainage away from excavations. Design surface drainage systems so that they do not cause erosion on or off the site, or cause unwanted flow of water.
- D. There shall be, upon the work at all times during the construction, proper and approved pumps and machinery of sufficient capacity to meet the maximum requirements for the removal of water or other liquids and their disposal.
- E. Dewatering operations shall in no way violated the conditions of the storm water pollution prevention plan (SWPPP), or the EPA regulations for Construction Storm Water.

3.8 BEDDING

- A. Bedding material below the pipe and that under and around the pipe to spring line shall be well tamped. That above spring line shall be placed in six (6) inch layers and be well tamped to a minimum height of twelve (12) inches above the top of the pipe.
- B. Where foundation conditions are such that the above types of bedding cannot be provided, as in quicksand, etc., special provisions shall be made as called for by the Drawings or as directed by the Engineer by providing concrete cradle or lumber foundations.

3.9 UNAUTHORIZED EXCAVATIONS

- A. All excavations carried outside of the lines and grades given or specified, together with the disposal of such material, and all excavations and other work resulting from slides, cave-ins, swellings or upheavals shall be at the Contractor's own cost and expense. All spaces resulting from unauthorized excavations or from slides or cave-ins shall be refilled at the Contractor's expense with concrete or other suitable material.

3.10 ADDITIONAL EXCAVATION

- A. It is expected that satisfactory foundations will be found at the elevations shown on the Drawings, but in case the material encountered is not suitable, or in case it is found desirable or necessary to go to additional depth, the excavation shall be carried to an additional depth as ordered and refilled as directed by the Engineer.

3.11 THRUST RESTRAINT

- A. Provide pressure and vacuum pipe with concrete thrust blocking at all bends, tees, valves, and changes in direction, in accordance with the Contract Drawings.

3.12 BACKFILLING

- A. As the various pipelines, conduits, etc. or parts of same are completed and inspected, the Contractor shall refill the space under, around and over with material as specified herein. Unless otherwise directed, all forms, bracing and lumber shall be removed during backfilling and the cavities and voids resulting from the removal shall be thoroughly backfilled.
- B. The bedding material shall be as specified and placed in accordance with the standard details. The limits of bedding shall be as indicated on the Standard Details for the respective pipes. The Contractor must use special care in placing this portion of the backfill so as to avoid injuring or moving the pipe when compacting the backfill. When the backfill has progressed to the limits shown on the Standard Details for the respective pipe, the work of backfilling shall be stopped, and the backfill in place shall be tamped or puddled as directed. Care shall be taken to prevent floating of the pipe.
- C. No cinders, rubbish, rocks, boulders, shale or other objectionable material shall be used as backfill against the pipe or in any part of the trench when, in the opinion of the Engineer, it will be injurious to the work. No backfilling shall be done with frozen materials upon frozen materials.

- D. Over sewers and other arched structures built in place and after the structure is completed and before the supports or centers are struck, the trenches shall be carefully filled by depositing without shock and by tamping suitable earth or other selected material at the sides and to a height not less than two (2) feet above the top of the pipe. This backfill shall be graded evenly across the trench. This backfilling must be done as the work progresses, and before any filling is deposited directly from a machine, bucket, cars, wagon, or other vehicles. The backfilling shall then be brought up evenly and all eccentric loading shall be avoided. In no case shall material dumped from bucket, truck or bulldozer be allowed to fall directly upon any conduit, pipe or other structure, and, in all cases, the bucket must be lowered so that the shock of the falling material will not injure the structure.
- E. The backfill shall be placed and compacted, using power driven mechanical tampers in layers of six (6) inch compacted thickness unless approved by the Engineer. Final paving shall be as shown on the Contract Drawings and Standard Details.

3.13 DISPOSAL OF WASTE

- A. A selected portion of the excavate material will be used for backfilling or filling about the pipe as ordered. Excavated material in excess of that needed for backfilling and filling and unsuitable material shall be disposed of by the Contractor at his own expense, and the cost of such disposal shall be deemed as having been included in the unit or lump sum prices bid.
- B. Prior to disposal, the Contractor shall obtain and submit to the Engineer written permission from the owner of the property upon which the material and debris are to be placed.

3.14 COMPACTION REQUIREMENTS

- A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D698.
- B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place, and as approved by the Engineer:
 - 1. Structures, Pavements, Walkways, Curbs and Steps:
 - a. Compact the subgrade and each layer of fill material or backfill material at 98% of maximum density.
 - 2. Lawn and Unpaved Area:
 - a. Compact each layer of fill material or backfill material at 90% of maximum density.
- C. Moisture Control:
 - 1. Where subgrade or layer of soil material must be moisture conditioned before compacting, uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.

- a. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to specified density.
- b. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the test laboratory.

D. Unsuitable Backfill Material:

- 1. Where the Engineer deems backfill material to be unsuitable and rejects all or part thereof due to conditions prevailing at the time of construction, remove the unsuitable material and replace with select material stone backfill or suitable foreign backfill material.
- 2. Compaction testing shall be required every 100 cubic yards or as required by the Engineer. Backfill found to be deficient shall be removed and re-compacted until compliant at no additional cost to the Owner.

3.15 UTILITY MARKING TAPE

- A. Install detectable utility marking tape above all plastic pipelines, eighteen (18) to twenty-four (24) inches below final grade.

3.16 ROUGH GRADING

- A. Rough grade areas disturbed by construction to a uniform finish. Form the bases for terraces, banks, lawns and paved areas.
- B. Grade areas to be paved to depths required for placing sub-base and paving materials.
- C. Rough grade areas to be seeded three (3) inches below indicated finish contours.

3.17 RESTORATION OF UNPAVED SURFACES

- A. Restore unpaved surfaces disturbed by construction to equal the surface condition prior to construction.
- B. Restore grassed areas in accordance with Section 329200.19, Seeding and Mulching.

3.18 MAINTENANCE

- A. Protection of newly graded areas:
 - 1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds.
 - 2. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

END OF SECTION 312316.13

SECTION 312323.13 – COMPACTED BACKFILL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall furnish, place and compact all the materials needed from select excavated materials or furnish additional suitable material if the excavated material is deemed unsuitable or the moisture content is not or can not be made to be within acceptable tolerances of optimum moisture to achieve the specified compaction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Suitable excavated material as specified in ODOT Item 203.

PART 3 - EXECUTION

3.1 PLACING

- A. Compacted backfill shall be properly placed in layers sufficient to meet the compaction requirement of 95% of maximum laboratory dry density per ASTM D 698 throughout the entire layer and thoroughly compacted with mechanical compaction equipment with moisture adjustment as needed. Should after settlement occur, the Contractor must add and compact additional material, and he must maintain the backfill at the required finished grade or sub-grade until the project is satisfactorily completed and during the correction period.
- B. Approved mechanical compaction equipment shall be used for tamping backfill. Flooding, jetting or puddling of backfill will not be permitted.

END OF SECTION 312323.13

SECTION 312323.14 – COMPACTED GRANULAR BACKFILL

PART 1 - GENERAL

1.1 SCOPE

- A. The Contractor shall furnish all the materials from the top of bedding to the pavement sub grade and shall properly place and compact gravel backfill, as approved, over conduits, pipelines and elsewhere, when ordered by the Engineer, when they are located under pavement or cross under roads, drives and elsewhere when backfill is required to be accomplished without future settlement, and only when and as called for by the Drawings or as may be ordered by the Engineer.
- B. Gravel, or other granular material that is excavated from the project area as part of the excavation shall not be used for the purposes of this specification.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill material shall be crushed limestone granular material meeting the requirements of ODOT CMS Item 304.

PART 3 - EXECUTION

3.1 PLACING

- A. Granular backfill, when called for by the Drawings, or ordered by the Engineer, for trench backfill shall be properly graded and placed in layers not over six (6") inches in depth, with voids reduced to a minimum, and thoroughly compacted with power driven mechanical tampers, or as directed by the Engineer. The placing of this material shall be continued until the required depth is compacted, and the top of this backfill shall be finished to the lines and grades called for by the Drawings, or as ordered by the Engineer. Should settlement occur, the Contractor must add and compact additional fill, and he must maintain the backfill at the required sub grade until the project is satisfactorily completed.

3.2 COMPACTION

- A. Minimum compaction for compacted granular material shall be 98 percent of the maximum dry density of the backfill material.
- B. At the beginning of compaction operations, the Contractor shall construct a test section in accordance with ODOT CMS Supplement 1015. Utilizing the test section, the Contractor shall establish the minimum compactive effort required to achieve the required trench compaction.

- C. Utilizing the minimum compactive effort established via the test section, installation of the compacted granular material may proceed without further compaction tests so long as the following conditions are maintained:
 - 1. The established minimum compactive effort is utilized throughout the installation area.
 - 2. Maximum lift thicknesses are maintained.
 - 3. Material and or the supporting materials are not appreciably different from those utilized in performance of the test section.
 - 4. Observation of the material within the trench does not reflect any areas where compaction visually appears inadequate.

- D. In areas where, in the judgement of the Owner or his designated representative, the compaction of the material within the trench appears to be inadequate, the Owner or his designee may require a compaction test to be performed by the Contractor. Testing to demonstrate the compaction of the in place material shall be the responsibility of the Contractor.

- E. It shall be the responsibility of the Contractor to perform compaction tests according to ODOT CMS Supplement 1015, or as required by the Owner or his designated representative. Tests shall be performed by competent personnel and with equipment made for the purposes intended and kept in good repair and working order. When, in the judgement of the Owner or his designated representative that the personnel performing the tests are not competent to do so or the equipment provided is not adequate, the Owner may order, at his sole discretion, that a certified soils testing laboratory perform tests and provide test reports to establish that the material and work conform with Project requirements.

- F. When material and/or the supporting materials change appreciably, placing the performance of the initial test section in question, the Contractor shall construct a new test section in accordance with ODOT CMS Supplement 1015 to establish revised compactive effort requirements for the project.

END OF SECTION 312323.14

SECTION 312500 – EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the Work of this Section.
- B. All requirements of the Storm Water Pollution Prevention Plan and Erosion Control Plan are included in the project plans.

1.2 DESCRIPTION OF WORK

- A. Work of this section includes, but is not limited to:
 - 1. Construction of sediment control measures
 - 2. Periodic cleanout of sediment traps and disposal of silt
 - 3. Maintenance of public and private travel ways in clean condition
 - 4. Removal of sediment control devices
 - 5. Temporary stabilization, including stockpiles.

1.3 QUALITY ASSURANCE

- A. All pre-packaged standard products shall have the Manufacturer's certified analysis affixed and conform to regulatory requirements.
- B. Sediment control measures depicted on the Drawings are intended to be minimum requirements to meet anticipated site conditions.
- C. When no sediment control facility is shown on the Drawings, the Contractor shall provide and design the facility to prevent salutation of adjacent property or streams.
- D. All erosion and sediment control measures shall be installed per specifications of Ohio Department of Natural Resources: Rainwater and Land Development; Ohio's Standards for Storm Water Management and Land Development and Urban Stream Protection. All construction shall conform to the requirements thereof.

1.4 SCHEDULE

- A. Required sediment control facilities must be in operation prior to land clearing and/or other construction, to ensure that sediment-laden water does not enter the natural drainage system.
- B. Sediment control measures shall be maintained in a satisfactory condition until such time that cleaning and/or construction is completed, and approval received by the Engineer.
- C. Construction sequence shall be as specified on the Drawings and as specified in applicable portions of these Specifications.

- D. The implementation, maintenance, replacement, and additions to sediment control measures shall be the responsibility of the Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials shall meet the requirements of the Ohio EPA and Ohio Department of Natural Resources and as specified in applicable portions of these Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. Sediment control provisions shall meet or exceed the requirements of the Ohio EPA Division of Surface Water.
- B. As construction progresses and seasonal conditions dictate, more sediment control facilities may be required. It shall be the responsibility of the Contractor to address new conditions that may be created and to provide additional facilities over and above minimum requirements as may be required.
- C. Wherever possible, the Contractor shall limit grading to only those areas involved in current construction activities and will limit the length of time of exposure and unprotected graded areas. The Contractor shall accomplish either temporary or permanent stabilization of these areas at the earliest opportunity.
- D. The Contractor shall provide all labor, materials, equipment and supervision to install erosion and sediment controls as shown on the Contract Drawings and/or specified herein. Work shall include but not be limited to excavation and shaping of existing ground, placement of silt fence, or as required complying with the U.S. Soil Conservation Service (USSCS) requirements. Work shall include furnishing, installing and maintaining all facilities and procedures necessary to maintain compliance with the local County Erosion and Sedimentation Control Ordinance and the USSCS Handbook.
- E. The work described herein and/or noted on the Contract Drawings shall be the first work performed under this Contract and no other work shall be performed until this work is completed and ready for use.
- F. The Contractor shall take all necessary precautions and measures to protect all properties from damage. He shall repair all damage caused by his operations to all public and private property including roads, walks, curbs, utilities, trees, shrubs, plantings, etc. and leave each property in good condition and/or at least equivalent to the condition found.

3.2 PROTECTIVE MEASURES

- A. Temporary silt fence shall be provided at the locations deemed necessary by the Owner, Engineer or Contractor.

- B. No debris or obstruction shall be left unstabilized in flood plains or stream areas beyond the period of project construction.
- C. The method of construction in flood plains shall provide for daily protection of all disturbed areas. Any cross-drainage through flood plains shall be safely channeled through disturbed areas to protect outlets.
- D. Storm drainage systems shall be kept operable and free of all excavated material.
- E. When the season permits, permanent vegetation stabilization of disturbed areas shall immediately follow the construction work. If permanent vegetative measures cannot be applied, temporary controls shall be used until the appropriate planting season.
- F. The Contractor shall maintain the silt fence until the project is completed and the threat of erosion and sedimentation from project construction is no longer present. Any displacement, ruptures, breaks or failure of the silt fence during the contract period shall be immediately repaired by the Contractor before resumption of construction activities with no additional cost to the Owner.
- G. Additional measures required by agencies having inspection authority for sediment and erosion control not outlined herein or detailed on the Contract Drawings shall be performed by the Contractor at no additional cost to the Owner.

END OF SECTION 312500

SECTION 321000 – PAVEMENT REPLACEMENT

PART 1 - GENERAL

1.1 SCOPE

- A. The Contractor shall furnish all of the equipment, labor and materials necessary to install, replace, and/or restore existing pavement structures together with their respective appurtenances as specified herein. This work shall include all of the sub grade preparation, subbase, base, intermediate pavement course(s), and finish pavement courses together with guttering, tack and/or prime coating, and other pertinent work as necessary to meet the conditions of this contract.

1.2 DESCRIPTION OF WORK

- A. Work of this Section includes, but is not limited to:
 - 1. Concrete Pavement / Drive Replacement
 - a. Aggregate base course.
 - b. Surface course.
 - c. Joints.
 - 2. Asphalt Concrete Pavement Replacement
 - a. Aggregate base course.
 - b. Asphalt concrete base.
 - c. Tack coat.
 - d. Surface course.
 - e. Intermediate course.
 - 3. Aggregate (Gravel) Berm Replacement
 - a. Stabilized crushed aggregate.
 - 4. Asphalt Concrete Driveway Replacement
 - a. Asphalt concrete base.
 - b. Tack coat.
 - c. Surface course.
 - 5. Aggregate (Gravel) Drive Replacement
 - a. Aggregate.

1.3 SUBMITTALS

- A. All submittals shall conform completely to the requirements of the Contract Documents, including all requirements set forth in Section 013300, Submittals.
- B. Reference Submittals
 - 1. Testing Reports and Material Certification.
 - a. Concrete
 - 1) Slump Tests
 - a) By approved laboratory at Contractor's expense.
 - b) Slump tests shall be taken at each 20 cu yd of concrete being placed.

- c) No concrete shall be placed that does not meet slump requirements of the Specification.
 - 2) Compression Tests
 - a) By approved laboratory at Contractor's expense.
 - b) Tests made in accordance with ASTM C39.
 - c) Cylinders shall be taken and broken by an approved laboratory at the rate of 4 cylinders per 1,500 sq yd of concrete poured but not less than 4 cylinders for each day's continuous pour.
 - d) Two cylinders to be used for 7-day compression test and two for 28-day tests.
 - b. Aggregate Base Course
 - 1) Submit 2 copies of laboratory test reports, endorsed by the Contractor, certifying compliance with the specifications as to material gradations and densities.
 - 2) Material and density tests by approved laboratory at Contractor's expense.
 - c. Asphalt Concrete Pavement
 - 1) Aggregate Base Course: Submit 2 copies of laboratory test reports, endorsed by the Contractor, certifying compliance with the Specifications as to material gradations and densities.
 - 2) Asphalt Concrete Pavement Surface, and Intermediate and Asphalt Concrete Base Course: Submit 2 copies of job mix formula as specified herein.

1.4 QUALITY ASSURANCE

A. Standards

- 1. References to ODOT Specifications are to the latest edition of "State of Ohio, Department of Transportation, Construction and Material Specifications.
- 2. Comply with requirements of the ODOT Specifications.
- 3. Comply with the requirements of the Ohio Manual of Uniform Traffic Control Devices.

1.5 JOB CONDITIONS

A. General

- 1. Test holes by the Contractor will be permitted provided the area is returned to as near original condition as possible.
- 2. Take all measurements and determine all elevations at the Site.

B. Subgrade: Unsatisfactory subgrade shall be reworked as specified.

C. Safeguards

- 1. During paving operations, maintain vehicular and pedestrian traffic as required for construction activities.
- 2. Provide flagmen, barricades, warning signs, and warning lights for the safe movement of traffic and in a manner that will cause the least interruption of work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete Pavement

1. General
 - a. Pavement thickness and joints shall be as indicated on the Drawings.
 - b. Reinforcement steel is not required.
2. Aggregate Base: Comply with ODOT Specifications, Item 304 - Aggregate Base.
3. Surface Course
 - a. Comply with ODOT Specifications, Item 452 - Plain Portland Cement Concrete Pavement.
 - b. Concrete shall contain 4-8% entrained air after it is in place.
 - c. Proportions shall conform to Class FS concrete, ODOT Specifications, Item 499 - Concrete - General.
 - d. Concrete shall develop a minimum strength of 4,000 psi in 28-day tests.
 - e. Slump
 - 1) Nominal: 1 to 3 inches.
 - 2) Maximum: 4 inches.
4. Pavement Joints: Expansion joint materials and joint sealers shall be in accordance with ODOT Specifications, Item 705.

B. Asphalt Concrete Pavement

1. Aggregate Base Course
 - a. Comply with ODOT Specifications, Item 304 - Aggregate Base.
 - b. Materials shall conform to the following gradation:

SIEVE	TOTAL PERCENT PASSING
2 inch	100
1 inch	70 – 100
3/4 inch	50 – 90
No. 4	30 – 60
No. 30	9 – 33
No. 200	0 - 13

- c. Moisture Content: - 4% to +2% of optimum moisture.
2. Asphalt Concrete Base
 - a. Comply with ODOT Specifications, Item 301 – Asphalt Concrete Base.
 - b. Materials shall conform to the following gradation:

SIEVE	TOTAL PERCENT PASSING
2 INCH	100
1 INCH	75 – 100
1/2 INCH	50 – 85
NO. 4	25 – 60
NO. 8	15 – 45
NO. 16	10 – 35
NO. 50	3 – 18
NO. 200	1 – 7

- c. Asphalt Binder content: 4% to 8%.
- 3. Tack Coat: Comply with ODOT Specifications, Item 407 - Tack Coat.
- 4. Surface or Intermediate Course
 - a. The asphalt concrete shall be composed of coarse and fine aggregate and asphalt cement in accordance with ODOT Specifications, Items 401, 441 and 448, Asphalt Concrete.
 - b. Material gradation of the aggregate portion of the mix shall conform to the following:
 - 1) Item 448 - Asphalt Concrete Surface Course, Type 1

SIEVE	TOTAL PERCENT PASSING
1/2 inch	100
3/8 inch	90-100
No. 4	45-57
No. 8	30-45
No. 16	17-35
No. 30	12-25
No.50	5-18
No. 100	2-10

- 2) Asphalt Binder content: 5.8% to 10%
- 3) Item 448 - Asphalt Concrete Intermediate Course, Type 2

SIEVE	TOTAL PERCENT PASSING
1 1/2 inch	100
1 inch	95-100
3/4 inch	85-100
1/2 inch	65 – 85
No. 4	35-60
No. 8	25-48
No. 16	16- 36
No. 30	12-30
No. 50	5-18
No. 100	2-10

- 4) Asphalt Binder content: 4.0% to 9%.

C. Aggregate (Gravel) Pavement (Shoulders)

- 1. The work shall consist of compacted crushed aggregate on a prepared subgrade to conform to the width, thickness and details indicated.
- 2. Comply with ODOT Specifications, Item 411 - Stabilized Crushed Aggregate.
- 3. Materials shall meet the following gradation:

SIEVE	TOTAL PERCENT PASSING
1-1/2 inch	100
1 inch	75 – 100
3/4 inch	60 – 100
3/8 inch	35 – 75
No. 4	30 – 60
No. 30	7 – 30
No. 200	3 -15

D. Asphalt Concrete Driveway

1. Asphalt Concrete Base

- a. Comply with ODOT Specifications, Item 301 – Asphalt Concrete Base.
- b. Materials shall conform to the following gradation:

SIEVE	TOTAL PERCENT PASSING
2 INCH	100
1 INCH	75 – 100
1/2 INCH	50 – 85
NO. 4	25 – 60
NO. 8	15 – 45
NO. 16	10 – 35
NO. 50	3 – 18
NO. 200	1 – 7

- c. Asphalt Binder content: 4% to 8%.
2. Tack Coat: Comply with ODOT Specifications, Item 407 - Tack Coat.
3. Surface Course
 - a. The asphalt concrete shall be composed of coarse and fine aggregate and asphalt cement in accordance with ODOT Specifications, Items 401, 441 and 448, Asphalt Concrete.
 - b. Material gradation of the aggregate portion of the mix shall conform to the following:
 - 1) Item 448 - Asphalt Concrete Surface Course, Type 1

SIEVE	TOTAL PERCENT PASSING
1/2 inch	100
3/8 inch	90-100
No. 4	45-57
No. 8	30-45
No. 16	17-35
No. 30	12-25
No.50	5-18
No. 100	2-10

- 2) Asphalt Binder content: 5.8% to 10%

E. Gravel Driveway

1. The work shall consist of compacted crushed aggregate on a prepared subgrade to conform to the width, thickness and details indicated.
2. Comply with ODOT Specifications, Item 304 – Aggregate Base.
3. Materials shall meet the following gradation:

SIEVE	TOTAL PERCENT PASSING
2 inch	100
1 inch	75 – 100
3/4 inch	50 - 90
No. 4	30 – 60
No. 30	9 - 33
No. 200	0 - 15

PART 3 - EXECUTION

3.1 PREPARATION

- A. Subgrade
 1. Proof-roll using heavy, rubber-tired rollers to check for unstable areas and areas requiring additional material and compaction.
 2. Replace unacceptable areas with new material.
- B. Existing Structures: When castings, valve boxes and other structures are encountered, they shall be reset to established grade as required
- C. Removal of Existing Paving: Saw-cut along the line of removal or of new work, in order to provide a smooth junction and a minimum of patching.

3.2 INSTALLATION

- A. General: Lines, grades and minimum thicknesses shall be as indicated.
- B. Concrete Pavement / Driveway
 1. Aggregate Base Course
 - a. Aggregate base course shall be placed directly on compacted subgrade.
 - b. The aggregate base shall be constructed in layers not to exceed 6 inches compacted depth.
 2. Surface Course
 - a. Plain portland cement concrete pavement shall be placed directly on a prepared aggregate base course.
 - b. Thickness shall be as shown on the Drawings.
 - c. Curing shall comply with ODOT Specifications, Item 451.10.
 3. Pavement Joints: Comply with ODOT Specifications Section 451.08.
- C. Asphalt Concrete Pavement
 1. Aggregate Base Course
 - a. Aggregate base course shall be placed directly on compacted subgrade.

- b. The aggregate base shall be constructed in layers not to exceed 8 inches compacted depth.
 - c. At the beginning of the work, the Contractor shall build a test section and compact at optimum moisture content to determine density requirements.
 - d. All subsequent aggregate base course shall be compacted until the density is 98% of the test section.
 - e. Water shall be added to obtain the moisture content at or near optimum during compaction.
- 2. Asphalt Concrete Base
 - a. Asphalt concrete base shall be placed directly on a prepared surface.
 - b. The asphalt concrete base shall be constructed in layers not to exceed 6 inches compacted depth.
- 3. Tack Coat
 - a. Thoroughly clean and dry the surface to which the tack coat is to be applied.
 - b. Apply to existing pavement where indicated or to new asphalt paving which has been in place over 14 days or has been used by traffic.
 - c. Tack coat shall be applied at the rate of 0.10-gal/sq. yd.
- 4. Intermediate and Surface Course
 - a. Intermediate and surface courses shall be applied in accordance with ODOT Specifications, Items 401, 441 and 448 to the aggregate base course or, where so detailed, to the asphalt concrete base course.
 - b. Transportation, placing, spreading and finishing of asphalt concrete paving shall be done in accordance with ODOT Specifications, Item 401.
 - c. Asphalt concrete paving to and including 3" total compacted thickness shall be placed in a single layer and compacted while hot.
 - d. Particular note is to be taken of Items 401.05 through 401.19 inclusive of the ODOT Specifications, which refer to construction methods and weather limitations.
- D. Aggregate (Gravel) Pavement (Shoulders)
- 1. Aggregate
 - a. Aggregate shall be placed directly on compacted subgrade.
 - b. The material shall be constructed in layers not to exceed 6 inches compacted depth.
 - c. Compaction
 - 1) Perform initial compaction of the material using crawler type tractors, tamping rollers, trench rollers, suitable pneumatic tire equipment, or other suitable equipment.
 - 2) Perform final compaction of the material using, suitable pneumatic tire equipment.
- E. Asphalt Concrete Driveway
- 1. Asphalt Concrete Base
 - a. Asphalt concrete base shall be placed directly on a prepared surface.
 - b. The asphalt concrete base shall be constructed in layers not to exceed 6 inches compacted depth.
 - 2. Tack Coat
 - a. Thoroughly clean and dry the surface to which the tack coat is to be applied.

- b. Apply to existing pavement where indicated or to new asphalt paving which has been in place over 14 days or has been used by traffic.
- c. Tack coat shall be applied at the rate of 0.10-gal/sq. yd.
- 3. Surface Course
 - a. Surface course shall be applied in accordance with ODOT Specifications, Items 401, 441 and 448 to the aggregate base course or, where so detailed, to the asphalt concrete base course.
 - b. Transportation, placing, spreading and finishing of asphalt concrete paving shall be done in accordance with ODOT Specifications, Item 401.
 - c. Asphalt concrete paving to and including 3" total compacted thickness shall be placed in a single layer and compacted while hot.
 - d. Particular note is to be taken of Items 401.05 through 401.19 inclusive of the ODOT Specifications, which refer to construction methods and weather limitations.

F. Gravel Driveway

- 1. Aggregate
 - a. Spread the material on the prepared surface. Do not spread on frozen material.
 - b. Spread the material such that it minimizes segregation and requires minimal blading or manipulation.
 - c. Compaction
 - 1) Compact each lift of material immediately after the spreading operations.
 - 2) Approved compaction equipment may consist of vibratory rollers, static rollers, or vibratory equipment.

END OF SECTION

SECTION 329200.19 – SEEDING AND MULCHING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Placing topsoil.
- B. Permanent seeding, hydro seeding, mulching and fertilizing.

1.2 RELATED SECTIONS

- A. Section 312316.13 – Trenching: Rough grading over cut.
- B. Section 312500 – Erosion and Sedimentation Control: Erosion control. Temporary seeding and mulching.

1.3 REFERENCES

- A. FS O-F-241 – Fertilizers, Mixed, Commercial.
- B. Lawn Mixture
 - 1. Kentucky Bluegrass (*Poa pratensis*) 3 lb./ 1000 ft²
 - 2. Creeping Red Fescue (*Festuca rubra*) 3 lb./ 1000 ft²
 - 3. Annual Ryegrass (*Lolium multiflorum*) 2 lb / 1000 ft²
 - 4. Perennial Ryegrass, turf type (*Lolium perenne*) 2 lb / 1000 ft²
- C. General Notes and any other related specifications.

1.4 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quack grass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambs quarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nut grass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.5 SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 017839 – Closeout Submittals: Procedures for submittals.
- B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.6 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.7 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

1.8 DELIVERY, STORAGE, AND PROTECTION

- A. Transport, handle, store, and protect products in accordance with manufacturer's recommendations.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.9 MAINTENANCE SERVICE

- A. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for two cuttings.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

- A. Seed Mixture: ODOT; Item 659.09; Lawn Mixture

2.2 SOIL MATERIALS

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.

2.3 ACCESSORIES

- A. Mulching Material:
 - 1. Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
 - 2. Hemlock species wood cellulose fiber, dust or chip form, free of growth or germination inhibiting ingredients.

- B. Fertilizer: FS O-F-241, Type I, Grade A; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis.
- C. Water: Clean, fresh and free of substances or matter, which could inhibit vigorous growth of grass.
- D. Erosion Fabric: Jute matting, open weave.
- E. Stakes: Softwood lumber, chisel pointed.
- F. String: Inorganic fiber.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this section.
- B. Soils must include enough fine-grained material to hold at least a moderate amount of available moisture.
- C. The soil must be free from material that is toxic or otherwise harmful to plant growth.
- D. Soils which do not meet the above minimum conditions shall receive topsoil to a depth of 4 inches.

3.2 SITE PREPARATION

- A. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
- B. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
- C. Topsoil shall be applied where needed to establish vegetation.

3.3 PLACING TOPSOIL

- A. Prior to applying topsoil, the topsoil should be pulverized.
- B. To ensure bonding, grade the subsoil and roughen the top 3-4 in. by disking.
- C. Do not apply when site is wet, muddy, or frozen, because it makes spreading difficult, causes compaction problems, and inhibits bonding with subsoil.

- D. Apply topsoil evenly to a depth of at least 4 inches and compact slightly to improve contact with subsoil.
- E. After spreading, grade and stabilize with seeding or appropriate vegetation.

3.4 SEEDBED PREPARATION

- A. Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
- B. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
- C. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

3.5 SEEDING DATES AND SOIL CONDITIONS

- A. Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, refer to dormant seeding.

3.6 SEEDING

- A. Apply seed at a rate of 3 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Planting Season: April to September.
- D. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- E. Immediately following seeding, apply mulch as required herein. Maintain clear of shrubs and trees
- F. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches.

3.7 SEED PROTECTION

- A. Identify seeded areas with stakes and string around area periphery.
- B. Cover seeded slopes where grade is 1:3 or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.

- C. Lay fabric smoothly on surface, bury top end of each section in 6-inch (150 mm) deep excavated topsoil trench. Provide 12-inch (300 mm) overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- D. Secure outside edges and overlaps at 36-inch (900 mm) intervals with stakes.
- E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches (150 mm).

3.8 DORMANT SEEDINGS

- A. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
 - B. The following methods may be used for “Dormant Seeding”:
1. From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
 2. From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
 3. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
 4. Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

3.9 MULCHING

- A. Mulch material shall be applied immediately after seeding. Dormant seeding shall also be mulched. 100% of the ground surface shall be covered with an approved material.
 - B. Application rates:
1. Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
 2. Hydroseeders—If wood cellulose fiber is used, it shall be applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
 3. Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer’s recommendations or wood chips applied at 6 tons per acre.

3.10 MAINTENANCE

- A. Expect emergence within 4 to 28 days after seeding, with legumes typically following grasses. Check permanent seedlings within 4 to 6 weeks after planting. Growth should indicate:
 - 1. Vigorous seedlings;
 - 2. Uniform ground surface coverage with at least 30% growth density;
 - 3. Uniformity with legumes and grasses well intermixed;
 - 4. Green, not yellow, leaves. Perennials should remain green throughout the summer, at least at the plant bases.
- B. Permanent seeding shall not be considered established for at least one full year from the time of planting. Inspect the seeding for soil erosion or plant loss during this first year. Repair bare and sparse areas. Fill gullies. Re-fertilize, re-seed, and re-mulch if required. Consider no-till planting. A minimum of 70% growth density, based on a visual inspection, must exist for an adequate permanent vegetative planting.
- C. If stand is inadequate or plant cover is patchy, identify the cause of failure and take corrective action: choice of plant materials, lime and fertilizer quantities, poor seedbed preparation, or weather. If vegetation fails to grow, have the soil tested to determine whether pH is in the correct range or nutrient deficiency is a problem.
- D. Depending on stand conditions, repair with complete seedbed preparation, then over-seed or re-seed.
- E. If it is the wrong time of year to plant desired species, over-seed with small grain cover crop to thicken the stand until timing is right to plant perennials or use temporary seeding.
- F. Satisfactory establishment may require re-fertilizing the stand in the second growing season.
- G. Consider mowing after plants reach a height of 6 to 8 inches. Mow grasses tall, at least 3 inches in height and minimizes compaction during the mowing process. Vegetation on structural practices such as embankments and grass-lined channels need to be mowed only to prevent woody plants from invading the stand.

END OF SECTION 329200.19

SECTION 330908 – WATER METER INTERFACE SYSTEM

PART 1 GENERAL

1.1 PROJECT SCOPE

- A. Under this specification a single manufacturer shall supply and manage all endpoints, Advanced Metering Analytics (AMA) software, software hosting, training and installation support necessary to furnish a meter reading system as outlined herein. Installation of the endpoints is the responsibility of the Contractor. The reading equipment shall be capable of receiving meter readings while utilizing a handheld reading device and/or a permanently mounted data collector unit (collectively as "AMI" or "fixed network").
- B. While a primary function shall be to provide accurate and timely meter reading data for billing purposes, the system shall also furnish hourly meter consumption information and meter-based analytical alarms to facilitate enhanced utility operation and management of the total water distribution system.
- C. Contractor shall provide all licensing, fees and related charges to install and operate the system for a period of twelve (12) months following system start-up.

1.2 SYSTEM DESCRIPTION

- A. The System shall be comprised of RF MIUs (Meter Interface Units), data collection devices, and host software. The System shall be capable of operating simultaneously in a walk-by (belt clip/walk-by), mobile (drive-by), full fixed network (permanently mounted data collectors), or any combination of these data collection methods without the need for reprogramming RF MIUs.
- B. The transition from walk-by and/or mobile to fixed network shall be seamless and allow all meter reading methods to operate together simultaneously. MIUs shall transmit messages required for both mobile AND fixed network operation on an interleaved basis, allowing both mobile AND fixed network data collection capability at the same time. Systems with MIUs that must be configured or programmed to operate in either one "mode" or the other will not be allowed.
- C. The System shall provide 8-digit meter reading resolution capability for encoders using Neptune E-Coder® or Sensus UI-1203 protocol in both mobile and fixed network data collection applications.
- D. Fixed Network Functionality:
 - 1. The Advanced Metering Infrastructure (AMI) System shall be engineered by manufacturer to utilize cellular endpoints and/or gateway transceivers that receive meter data sent from point-to-point fixed network endpoints located at each water meter. The fixed network endpoints must operate in two-way high power fixed network mode with data being sent to the gateway transceivers on an hourly basis.
 - 2. When deployed as a fixed network, the System shall provide hourly consumption interval data, time-synchronized at the host meter reading software. The host

software shall provide individual account consumption interval data displayed in graphical as well as tabular formats, readily accessible to utility Customer Service Representatives to facilitate customer bill complaint resolution without the need for a truck roll.

3. When deployed as a fixed network, the System shall provide priority alarm notification of potential leak and/or reverse flow events with user-configurable email or text messages for notification to utility personnel.
4. When operating as a fixed network, the System shall provide the capability for a demand read initiated from the host software application. The number of demand read requests made over the lifetime of an MIU shall not impact the battery life or warranty.

E. Meter Interface Units (MIUs)

1. Meters connected to RF MIUs shall collect meter usage from an encoder meter register and shall transmit the meter reading and a unique ID number to the data collection device.
2. The MIUs must be compact electronic devices connected to the water meters. They shall interrogate the encoder register and transmit the meter reading and other information to a remote reading device. They shall be compatible with Neptune and Sensus-protocol (UI-1203) absolute encoder registers. MIUs shall feature “auto detect” functionality to detect the type of encoder connected and shall not require reprogramming in the field. The same RF MIUs must be capable of being read by a walk-by handheld computer equipped with an RF receiver, a mobile system with an RF receiver mounted in a vehicle, and a fixed network data collection system. This shall allow an easy migration between meter reading systems without any change to the MIU devices or revisiting the site.
3. The MIU shall log 96 days of hourly consumption data, available for retrieval via RF activation from the handheld data collection device.
4. The MIUs shall be attached to new meters, or they shall retrofit existing meters in the field. The MIUs shall be manufactured in both wall and pit models. The wall MIU shall have the ability to be mounted in a basement or on the outside of a house. The pit MIU shall have the ability to be mounted in a pit or an underground vault and offer an optional through-the-pit-lid antenna. The wall and pit MIUs shall have a fully-potted, submersible design.
5. MIUs shall also be available as integrated devices in which the encoder register and RF transmitter module are integrated into a single module. The unit shall interrogate the solid state odometer of the integrated absolute encoder register and transmit the meter reading and other information to a data collection reading device.
6. The absolute solid state encoder register with integrated MIU shall be attached to new meters, or they shall retrofit existing meters in the field via a bayonet mount on top of the meter main case. The absolute solid state encoder register with integrated MIU shall be manufactured in both inside and pit models. The inside MIU shall have a water-resistant enclosure and a permanent internal antenna. The pit MIU enclosure shall be a roll-sealed copper can and glass lens, designed to ensure a watertight seal with a permanent internal antenna and offer an optional through-the-pit-lid antenna to optimize performance in hard-to-read or fixed network applications.

1.3 ADVANCED METERING ANALYTICS (AMA) SYSTEM REQUIREMENTS

- A. AMA Software – Performance Requirements
 - 1. The manufacturer shall fully host and manage the AMA software. The AMA software shall be hosted on a web-based network platform where any PC connected to the internet, using a compatible web-browser with user’s assigned credentials, will be able to access the system.

- B. Consumer Engagement
 - 1. The AMA software shall provide a consumer engagement module that includes online access and a smart phone application to allow the utility customer access to their usage information.

- C. Reporting Capabilities
 - 1. Reports and tables generated by the software will have the ability to easily select and compile particular data for printing or exporting via CSV format. The software shall allow a utility to search the database to easily locate specific customer information and readings. Historic customer reading information will be converted to consumption and allow graphical display for printing or exporting via CSV format.

- D. Under a managed solutions contract, manufacturer shall provide the following:
 - 1. Engineered deployment design
 - 2. Hosted and managed AMA software under a long-term contract
 - a. All AMA software upgrades and updates
 - b. Periodic web-based training of AMA software
 - c. Consumer engagement tools
 - 3. Installation, monitoring and repair of network infrastructure
 - 4. 24/7 Technical support for all supplied software and hardware
 - 5. Future-proof technology
 - a. Upon contract renewal, manufacturer will supply endpoints with the most current technology
 - b. All software and server updates are included by manufacturer

1.4 SUBMITTALS

- A. Submittal Procedures: Follow Section 013300.

- B. Information to be submitted with Bid: Technical Proposal
 - 1. Propagation Study:
 - a. AMI System: Manufacturer must submit a complete propagation study identifying the ability to adequately send/receive data within the service area. Determine the locations best suited for installation of the collectors and to ensure proper communications with end point transmitters and the head end system. Include locations/addresses of each collector. 100% of the system must be read by the collectors.
 - 2. Life Cycle Cost Analysis:
 - a. AMI System: Present Life Cycle Cost Analysis with Meter Interface Units (MIUs) including hosted software (software as a service – SAAS) and maintenance programs and technical support for a full 20-year period. Provide

replacement and/or repair costs for all components of the AMI system as part of this life cycle cost analysis.

3. System Description: Provide overall description of proposed AMI system and its individual components. Include product sheets for proposed meters, interface system hardware and software components.
4. Warranties: Provide published terms and conditions of all warranties offered and, if warranty durations are different than specified in contract documents, note specific differences. Third-party guarantees or warranties will not be considered.
5. Maintenance and Support: Supply information regarding required or optional maintenance programs beyond the warranty period for both hardware and software. Features of those maintenance programs shall also be outlined. List any additional charges for the maintenance programs, such as hourly rate for on-site and/or remote support above the annual fee allowance outlined as a part of the base bid and/or the supplemental bid items presented for hosting and/or support agreements.

C. Submittals after Award of the Contract

1. Submit, as provided in Section 013300 of these specifications, copies of all materials required to establish compliance with the specifications. Submittals shall include shop drawings showing important details of construction, installation instructions including drawing and descriptive literature, bulletins and/or catalogs of equipment, collector towers, operating and maintenance instructions, repair manuals, and parts manuals.
2. Installation Plan: Submit detailed description of proposed installation. Indicate dimensions and tolerances, component connections and details, clearances required and installation requirements and details.
3. Product Data: Submit data on MIUs and accessories and AMI data collectors. Submit manufacturer's literature and data indicating rated capacities, dimensions, weights and point loads. Indicate accessories, electrical characteristics and connection requirements, wiring diagrams, and location and sizes of field connections.
4. Samples: Submit two sample MIUs one of each type representing a wall mount and a pit installation mount illustrating materials of construction and finishes.
5. Design Data: Submit manufacturer's latest published literature; include illustrations, installation instructions, maintenance instructions, and spare parts lists.
6. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
7. Manufacturer's Field Reports: Provide field reports for each site and include pre-install and post-install photographs, serial numbers for each component, coordinates, size, type, and other pertinent data, follow Paragraph 3.4.

1.5 WARRANTY

- A. In evaluating bid submittals, warranty coverage will be considered. The Manufacturer shall be required to state its warranty and/or guarantee policy with respect to each item of proposed equipment. The procedure for submitting warranty claims must also be provided. The procedure shall be outlined in detail with all applicable information including but not limited to addresses, phone numbers, shipping labels, forms, etc.

- B. Except as noted below, all products furnished under this Contract shall be warranted for at least one year from the date of delivery to the Owner, for defects in materials and workmanship. The warranty services shall include, at no additional cost to the Owner, all parts and labor needed for normal operation of the system and for any warranty repairs that may be needed. Coverage shall include MIUs, data collectors, repeaters and appurtenances. In the event of a non-functioning item, Contractor shall assist by telephone with troubleshooting, and shall promptly respond to emergency calls. For warranty-related problems, loaner equipment shall be provided to the Owner at no additional cost to the Owner, while the failed equipment is repaired or replaced by the Contractor.
- C. Warranty period shall restart at time = 0 for any replaced components and will commence on date of placing into service.
- D. General Warranty: The special warranty specified in this Article shall not deprive Buyer of other rights or remedies; buyer may otherwise have under the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Seller under the Contract Documents. The obligations of Seller under the Contract Documents shall not be limited in any way by the provisions of the specified special warranty.
- E. Provide manufacturer's written warranty, running to the benefit of Owner, agreeing to correct, or at option of Owner, remove or replace materials or equipment specified in this Section found to be defective during the standard manufacturer's warranty after the date of delivery unless modified below.
 - 1. MIUs shall be guaranteed for at least twenty (20) years from the date of delivery based on hourly reads with multiple data transmissions per day. The initial ten (10) years of the warranty period shall be considered a full replacement warranty, with the warranty offered for years 11 through 20 on a prorated basis.
 - 2. MIU Battery shall be free of manufacture and design defects for a period of twenty (20) years.

1.6 QUALIFICATIONS

- A. The manufacturer shall have a minimum of twenty years of product experience in the field of water AMR / AMI and should have sold a minimum of 12,000,000 AMR or AMI endpoints (touch-read not included) into water utilities over the past fifteen years.

1.7 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 331900.01 – Utility Metering Equipment

PART 2 PRODUCTS

2.1 METER INTERFACE UNITS (MIUs) / ENDPOINT

- A. Pit Unit
 - 1. For pit or vault applications, the MIU antenna shall be designed to be installed through the industry standard 1¾" hole in the pit lid with no degradation of

transmission range. The MIU antenna unit will be capable of mounting to various thicknesses of pit lids from ½” to 2½”.

2. The device shall be capable of operating at temperatures of -22°F to +149°F (-30°C to +65°C) and operating humidity of 0 to 100% condensing.
3. The range will not be affected when the pit is flooded.
4. The circuit board and the battery will be protected by a potting material.
5. The antenna shall be made of a metallic-and-polymer material to withstand traffic and shall have a dual-seal connection to the MIU housing.
6. The MIU device must be protected against static discharge without loss of data per IEC 801-2, issue 2.

B. Operation

1. The MIU shall operate within FCC Part 15.247 regulations for devices operating in the 902 MHz to 928 MHz unlicensed band. The output power of the devices will be governed by their conformance to these relevant FCC standards.
2. To minimize the potential for RF interference from other devices, the MIU shall transmit using the frequency hopping, spread-spectrum technique comprised of alternating pseudo-random frequencies within the 902 MHz to 928 MHz unlicensed band.
3. For ease of implementation, the System shall not require any special licensing, including licenses from the FCC. The System must, therefore, operate in the 902 MHz to 928 MHz unlicensed band.
4. The System must be expandable at any time without getting authorization from the FCC.
5. No wake-up tone shall be necessary.
6. No MIU programming shall be necessary for installation.
7. The MIU shall provide 8-digit reading resolution from encoded registers using either Neptune E-Coder or Sensus UI-1203 protocol in mobile as well as fixed network data collection applications, simultaneously, without need for programming.
8. The MIU shall read the encoded register at 15-minute intervals to provide accurate leak and reverse flow detection using 8-digit resolution reads.
9. The MIU shall transmit readings from the encoder that are not older than 15 minutes.
10. The MIU shall transmit the meter reading continuously at a predetermined transmission interval.
11. The MIU shall transmit fixed network messages every 7½ minutes – standard. No programming shall be necessary to activate transmission of fixed network messages.
12. The fixed network message shall include multiple meter readings for redundancy to improve read success rates.
13. The MIU shall transmit mobile messages every 14 seconds – standard. No programming shall be necessary to activate or revert to transmission of mobile messages.
14. Power shall be supplied to the MIU by a lithium battery with capacitor. The vendor shall warrant that the MIUs shall be free of manufacture and design defects for a period of twenty (20) years – the first ten (10) years from the date of shipment from factory without prorating and the second ten (10) years with prorating, as long as the MIU is working under the environmental and meter reading conditions specified.
15. The number of radio-based meter reads performed must not affect the battery life.

16. The battery life shall not be affected by outside erroneous wake-up tones (e.g., other water, gas, or electric utilities reading and therefore sending out a wake-up tone).
17. The battery shall be a fully-potted component of the MIU with no external wires.
18. For reliability and meter reading integrity, the vendor shall be the sole manufacturer of the different components of the System (water meters, RF MIUs, meter reading equipment, and meter reading software) and provide a turnkey system offering to the utility.
19. In the event of a cut wire, the MIU shall not send the last good read as this can lead to mis-billing. The MIU shall transmit a trouble code in lieu of the meter reading.
20. Tamper – If wiring has been disconnected, a “non-reading” shall be provided indicating wire tamper; a reading that gives the last available reading is an incorrect reading.
21. Each device shall have unique preprogrammed identification numbers of ten (10) characters. ID numbers will be permanent and shall not be altered. Each device shall be labeled with the ID number in numeric and barcode form. The label shall also display FCC approval information, manufacturer’s designation, and date of manufacture.
22. The MIU shall transmit the encoder meter reading and a unique MIU ID number.
23. The MIU shall interface to Neptune ARB® V, ProRead™, E-Coder, or Sensus UI-1203 communication protocol absolute encoder registers via a 3-conductor wire without need for special configuration of the MIU.
24. The MIU shall be mounted per the manufacturer’s installation instructions.
25. The handheld reading equipment shall provide a test mode to verify proper operation of the MIU by displaying the MIU ID number and meter reading.
26. The MIU RF signal shall be capable of being received by either a handheld receiver, mobile receiver, or fixed network receiver without special configuration, programming of operation modes, or remanufacture.

2.2 DATA COLLECTION DEVICE – HANDHELD SYSTEM

A. Handheld Data Collection System

1. The handheld data collection device must be a portable, compact electronic device. The walk-by RF transceiver must be a separate belt clip, wearable, transmit/receive device which communicates via Bluetooth to a handheld data collection device. The handheld data collection device must collect the data transmitted by the MIUs and store it to be downloaded to the host computer at the utility office.
2. The walk-by RF transceiver must support the ability to remotely command the MIU to transmit data logging interval data.

B. Hardware Specifications:

1. The walk-by RF transceiver antenna shall be internally mounted.
2. The walk-by RF transceiver must meet FCC Class B certification.
3. The walk-by RF transceiver must contain an SD card.
4. The walk-by RF transceiver must utilize SDR (software-defined radio) technology.
5. The walk-by RF transceiver must contain a mini-USB port for both battery charging and PC communications.
6. The walk-by RF transceiver must contain a field-replaceable battery.
7. The walk-by RF transceiver must have four (4) LEDs displaying the following:

- a. Battery/power status
 - b. RF status
 - c. Bluetooth status
 - d. Mode status
8. The external RF transceiver must be capable of unattended operations where the receiver is not paired with any handheld device but hears and stores any received reading packets to the SD card. This data must be able to be imported into the host software for use as billing reads.

C. Environmental Conditions

- 1. The walk-by RF transceiver device must work in the following environmental conditions:
 - a. Operating conditions: -4°F to +122°F (-20°C to +50°C)
 - b. Storage temperature: -40°F to +185°F (-30°C to +70°C)
 - c. Designed to and tested to MIL-STD-810F specifications
 - d. Designed to withstand electrostatic discharges per EN61000-4-2 4.1.5.3
- 2. The data collection device battery must provide enough power to support RF meter reading for a minimum of eight (8) hours.

2.3 FIXED NETWORK FUNCTIONALITY

A. Basic Requirements

- 1. The fixed network functionality must be able to operate in parallel with other meter reading technologies such as walk-by, handheld, and mobile systems and utilize a common interface to the CIS/billing software system. The fixed network functionality must also support the migration of technologies (e.g., handheld to mobile, mobile to fixed network).
- 2. The fixed network functionality is comprised of two major components; data collection software and fixed network data collection units.
- 3. The fixed network functionality must be capable of automatically retrieving consumption information from the same MIUs being read by walk-by and mobile data collection devices to manage customer account and meter reading information, to provide usage analysis information, and to provide a flexible host interface to utility's CIS system.
- 4. The fixed network functionality must be capable of retrieving consumption information from MIUs via walkby, mobile drive-by, and fixed network data collection without the need for mode changes or reprogramming.
- 5. The host software must be capable of storing meter readings with the capability to store up to 96 readings per day per meter. The host software must also provide meter reading management reports, usage analysis reports (flow profiling, leak detection, tamper detection, and reverse flow conditions), off-cycle reads, and system management diagnostics. It must provide comprehensive coverage for all selected strategic commercial and industrial customers, including indoor, outside, and in pits/vaults, utilizing a single or hybrid technology solution. The network architecture should provide scalability and adequate bandwidth to provide hourly reading requirements.

6. The WAN architecture must be flexible to allow communications via common public communication networks such as CDMA and GSM cellular systems.
7. The fixed network functionality must utilize an unlicensed radio frequency band for LAN communications.
8. Network management tools must be available to properly monitor the performance of the system to ensure reliable data delivery to the utility for all billing and/or other customer service applications.
9. Both the fixed network WAN and host software shall remain the property of the utility.

B. Gateway Transceiver Performance Requirements

1. Communication: Gateway transceivers shall have two-way capabilities between the fixed network endpoint and the AMA software.
2. Configuration: Both a remote mount antenna unit and a direct mount antenna unit must be available with the gateway transceiver.
3. Capacity: Each gateway transceivers must have the ability to receive and store 60-days of hourly interval metering data from up to 3,600 endpoints. Metering and exception data information will be stored in the gateway transceivers non-volatile memory such that no data is lost in the event of a power interruption.
4. System Data: The metering data stored at the gateway transceivers will include for each assigned endpoint: serial number, minimum of the past 60 days of the hourly meter reads, wire tamper, encoder error, RSSI and low battery indicators. The AMA software will continually optimize system performance and monitor system diagnostics by utilizing the data from the gateway transceivers.
5. Data Security: The gateway transceivers must utilize a secure authentication algorithm and support the 128-bit Advanced Encryption Standard (AES-128) in order to protect the metering data. When a Wi-Fi backhaul is utilized, the gateway transceivers will support the following wireless security schemes: WEP 64/128, WPA-PSK, WPA2, WPA2-PSK.
6. Network Backhaul: The gateway transceivers will have multiple data backhaul options. The gateway transceivers must have the ability to utilize Cellular (CDMA or GPRS) and/or direct LAN network connections for data backhaul options.
7. Power: The gateway transceivers will have multiple power options. The gateway transceivers must have the ability to utilize standard 110V AC or solar power options.
8. Backup Power: The gateway transceivers will have at a minimum a eight-hour battery backup integral to the unit.
9. Environmental: The gateway transceivers must be able to withstand temperatures between -22° F and +140° F. The gateway transceivers must withstand 0% to 100% humidity with a rating of at least NEMA4X or IP66. The gateway transceivers must be able to withstand a wind loading area of 1.5 ft² at a maximum.

2.4 ANDROID / iOS APPLICATION REQUIREMENTS

A. Basic Requirements

1. The System shall have a mobile app compatible with Android and/or iOS mobile phones and tablets that enables retrieval of data logging and off-cycle read data as well as test functionality to validate MIU installations.
2. The app shall be compatible with Android version 2.3.3 and above as well as the most current iOS system.
3. The app shall support graphing of retrieved data logging intervals with views supporting a week at a time, month at a time, and a day at a time (hourly intervals).
4. The app shall support sharing data logging reports and graphs with the homeowner or end consumer via e-mail from the Android / iOS phone or tablet.
5. The app shall provide a test function to validate MIU reception and also to obtain readings and flag status notifications.
6. The app shall provide a security key to prevent personnel not associated with the water utility from installing the application.

2.5 METER READING SOFTWARE (HOST SOFTWARE) FOR FIXED NETWORK SOLUTIONS

- A. The host software shall be designed to support key departments within the utility organization (Customer Service, Billing, Operations) by providing data in user-friendly, function-specific screens as well as reports to help utility personnel manage their day-to-day operations. The host software shall provide users with an intuitive dashboard with key performance indicators (KPIs) for easy system monitoring and control, monthly, daily, and hourly customer usage graphs, enhanced reporting, priority alarms, and mapping functionality.
- B. The host software shall have the basic capability of supplying the following features to the end user:
 1. Employ thin-client (browser-based) architecture wherein the database is centralized and the host application requires no local install, but is instead accessible through typical internet browser programs.
 2. The host software shall interface with the utility's CIS for off-cycle meter reading.
 3. The host software shall interface with third-party applications such as work order systems via a standard interface such as web services.
 4. The host software shall provide reading performance reports and advanced usage analysis capabilities such as District Metered Area (DMA) analysis.
 5. The host software shall provide KPIs to allow for proactive monitoring of system health and performance.
 6. The host software shall provide automated alert configuration capability to send information directly to key utility personnel (via email or SMS) based on predefined triggers and thresholds.
 7. The host software must be able to export data to Microsoft Excel and Word applications.
 8. The host software must be designed to hold two (2) years of history for direct access, with an option for secondary direct-access storage and reporting of older consumption history.
 9. The host software shall provide an export of key data for third-party meter data management or customer web presentation.

10. The host software shall provide specialized customer service screens for support of utility customers by customer service representatives.
11. The host software shall include a GIS mapping module for visual analysis of AMI data throughout a utility's service area.
12. The host software shall have the basic capability of providing monthly, daily, and hourly consumption and event information in a tabular and graphical format to assist with customer billing disputes and improved customer service.

2.6 ADVANCED METERING ANALYTICS (AMA) SYSTEM REQUIREMENTS

A. AMA Software – Performance Requirements

1. The manufacturer shall fully host and manage the AMA software. The AMA software shall be hosted on a web-based network platform where any PC connected to the internet, using a compatible web-browser with user's assigned credentials, will be able to access the system.

B. Consumer Engagement

1. The AMA software shall provide a consumer engagement module that includes online access and a smart phone application to allow the utility customer access to their usage information.

C. Reporting Capabilities

1. Reports and tables generated by the software will have the ability to easily select and compile particular data for printing or exporting via CSV format. The software shall allow a utility to search the database to easily locate specific customer information and readings. Historic customer reading information will be converted to consumption and allow graphical display for printing or exporting via CSV format.

PART 3 EXECUTION

3.1 PRE-INSTALLATION MEETINGS

- A. Pre-installation meeting will be held to review project, worksites, storage, office, personnel, etc.
- B. The meeting will take place one month prior to the start of the installation phase of the project.

3.2 COORDINATION

- A. Coordinate integration of AMI system with the Owner and billing software system's company.

3.3 SCHEDULING

- A. Meters are to be installed in an exterior pit as a part of this project.

- B. It is most important to the Owner that proper care should be taken when interfacing with existing water services.
 - 1. Contractor shall establish work schedules that will minimize customer inconvenience and maximize gaining access to customer's premises.
 - 2. Installer Work schedules shall be subject to Owner's approval.

3.4 INSTALLATION OF EQUIPMENT

- A. The Contractor shall provide on-site photos verifying the correct address as well as before and after pictures of the installation. These photos must be made available in a format easily accessed by the Owner's personnel.
- B. The following summary describes the general steps of the installation Work to be done. The actual Work may differ from this description, and will not be limited to these actions:
 - 1. Install new meter pit.
 - 2. Install meter.
 - 3. Test installation with Manufacturer's tester or equivalent.
 - 4. Clean work area.
 - 5. Complete paperwork.
 - 6. Complete regular submissions of paperwork to Owner

3.5 ADDITIONAL WORK AS AUTHORIZED

- A. Any additional Work requested by the Owner, not outlined as a part of Supplemental Bid Items, will be performed on a negotiated time and material basis.

3.6 PROTECTION OF FINISHED WORK

- A. Protect finished work until it is placed into service, inspected by, and turned over to, the Owner.

3.7 FIELD QUALITY CONTROL

- A. Field Tests:
 - 1. Upon completion of installation, perform field testing in presence of Owner to verify complete functionality of the system.
 - 2. Field testing shall include test readings of a minimum of 50 meters to demonstrate to Owner the satisfactory operation of the system including all DCUs, Base Station, and software. Meter locations for the test shall be selected by the Owner, shall be distributed around the utility, and shall include expected areas of difficult radio transmission to the furthest point in the Owner's distribution system from each AMI station provided.
 - 3. Criteria for Acceptance: Satisfy Owner that system performs as intended.
 - 4. The MIU must be tested at the time of installation to ensure a reading is captured. The Contractor must provide each technician with the required equipment capable of reading the MIU at the time of installation. The Contractor must immediately correct at the time of installation any defects observed during the testing procedures.

The radio meter interface unit assembly shall also be tested for continuity according to the Manufacturer's instructions. An installation is determined to have been successfully completed when a valid reading and ID is obtained through the radio meter interface assembly in a manner acceptable to the Owner. The Contractor shall correct immediately any defects observed during the foregoing testing procedures.

- B. Manufacturer's Services: Provide services for equipment manufacturer's factory-trained service representative to supervise installation of the equipment, field testing of the system, and training of Owner's personnel.
- C. Conditional acceptance shall not relieve the Contractor of the responsibility to ensure that 100% of meters in the utility are read by the fixed-network AMI system at project completion.

3.8 CLEANING AND DISPOSAL

- A. The Installer will be responsible for keeping the Project area free from the accumulation of waste materials or trash that result from the Project-related Work. Upon completion of the initial Project-related Work, the Installer will remove all waste materials, trash, tools, construction equipment and supplies, and shall remove all surplus materials associated with the Project.

3.9 SOFTWARE/ENDPOINT INSTALLATION AND TRAINING

- A. The manufacturer shall provide installation instructions to the Contractor for all field installation required for system hardware.
- B. The manufacturer's certified training personnel shall set up and test the AMA software for the utility. Upon successful completion of the set-up, the manufacturer's certified training personnel shall provide training on the operation and maintenance of the system, and endpoint installation.
- C. To support a community of users, the manufacturer shall provide periodic web-based training on the different features of the AMA software to ensure the user can enjoy all the benefits the system provides.

3.10 TECHNICAL SUPPORT

- A. The manufacturer shall maintain a staff of technical support personnel trained in all aspects of the metering and AMA system. Technical support must be available via the phone 24/7. After-hours return calls shall be guaranteed within 30 minutes.

END OF SECTION

SECTION 331113 – WATERLINE COMPONENTS

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the Work of this Section, including but not limited to Division 1, General Requirements.

1.2 DESCRIPTION OF WORK

- A. Service line work to facilitate the installation of a new residential meter within an exterior meter pit.
- B. Supply and installation of a new exterior, coil-style meter pit at each existing water service location.
- C. Related work specified elsewhere includes, but is not limited to:
 - 1. Section 312316.13, Trench Excavation, Bedding and Backfill
 - 2. Section 330908, Water Meter Interface System
 - 3. Section 331900.01, Utility Metering Equipment

1.3 QUALITY ASSURANCE

- A. General: All materials shall be free from defects impairing strength and durability and be of the best quality for the purposes specified or shown on the Drawings. It shall have structural properties sufficient to solely sustain or withstand strain and stresses to which it is normally subjected and be true to detail.
- B. Manufacturer's Qualifications
 - 1. Provide piping and appurtenances that are standard products in regular production by manufacturers whose products have proven reliable in similar service for at least two years.
 - 2. Provide piping and appurtenances of the same type from a single manufacturer.
- C. The Contractor shall be responsible for making all field measurements prior to installation of his work. Any deviations in measurements between the field conditions and the Drawings shall be immediately reported to the Engineer.
- D. Testing
 - 1. Manufacturer's certified test results as defined for the type of pipe shall be stamped approved by the Contractor and forwarded to the Engineer as a Reference Submittal. No pipe shall be installed which does not meet the requirements of these Specifications.
 - 2. All pipe, joints, and fittings shall be pressure tested as required by this Specification for the type of pipe. The Contractor shall notify the Engineer and Owner, in writing, at least 48 hours prior to performing the tests.

1.4 SUBMITTALS

- A. Provide technical submittals in accordance with Section 01300, Submittals, demonstrating piping and accessories conform completely to the requirements of this Section.
- B. Product Data
 - 1. Catalog cut sheets and description of all items.
 - 2. Construction materials.
 - 3. Standard diameters, wall thickness, and other pertinent dimensions of all sizes of piping and accessories.
- C. Testing: Copies of all field test reports.

1.5 HANDLING, DELIVERY, AND STORAGE

- A. General
 - 1. Handling, delivery, and storage shall be in accordance with Section 01600 of the Project Manual and the manufacturer's recommendations.
 - 2. In no case shall the pipe or appurtenance be dumped, dropped, or thrown.
 - 3. Interior of piping shall be completely free of dirt and foreign matter.

PART 2 - PRODUCTS

2.1 METER COIL PIT ASSEMBLY

- A. The meter pit shall be of a round style and made from PVC plastic with a minimum wall thickness of 0.300", to prevent distortion when backfilling.
- B. The meter pit shall have a 15" diameter and a bury depth of 42".
- C. The meter pit shall have a side locking style lid.
- D. The meter pit shall have a brass 3/4" male iron pipe connection on the inlet and outlet that shall pass through the box wall and shall be locked into place by brass hex nuts.
- E. The meter pit tubing shall be polybutylene and shall be attached to the interior of the inlet and outlet connections. The tubing shall have a pressure rating of 250 psig and shall be crimped in place to a brass connector with an internal stiffener to support the tubing. The opposite end of the tubing shall be attached to another brass connector on the meter platform in a similar manner. The tubing between the inlet and platform connection shall be permanently coiled.
- F. The meter pit shall have an ABS plastic platform for the meter setting which will contain the meter setting valves. The platform shall be scalloped on the sides to easily pass over the side locking brackets. The platform shall be designed so it can be raised to the top of the box without disconnecting any piping. In the raised position, the platform shall be capable of being set atop the locking brackets at the top of the box, allowing the

meter and/or valves to be serviced at ground level. A PVC ring shall support the platform and provide additional rigidity to the meter box.

- G. The meter pit shall have a full port, lock wing, ball angle meter valve for its meter inlet, a meter coupling for the meter outlet, a meter coupling, for the pressure reducing valve inlet, and an A.S.S.E. dual check valve for the pressure reducing valve outlet connection. All brass components in contact with potable water must be made from either CDA/UNS Brass Alloys C89520 or C89833 with a maximum lead content of 0.25% by weight. Brass alloys not listed in ANSI/AWWA C800 Paragraph 4.1.2 are not approved.
- H. The meter pit lid shall be a 15", metallic lid with a side locking pentagon nut. The composite lid shall come equipped with a pre-drilled hole for electronic meter reading.
- I. The meter pit shall have a 15" x 4" closed cell insulating pad with a nylon strap handle to trap warm air from the earth and keep the air around the meter above freezing.
- J. The meter pit and cover shall be made in the U.S.A.
- K. The meter pit design shall be a straight setter (5/8" x 3/4"), preassembled adjust-a-coil rigid PVC meter box with meter setter, 42" depth, lock wing angle meter stop inlet valve, dual check meter outlet valve, less bottom, side-locking lid, incorporating no lead brass. Adapters shall be provided on the inlet and outlet of the meter box to interface to the adjacent service line. Adapters shall be 3/4" CTS compression style.
- L. Meter pit Manufacturer / Model shall be:
 - 1. Mueller, Thermal-Coil Meter Box
 - 2. A.Y. McDonald, 790 Series Coil Pit Setter
 - 3. Ford Meter Box, Coil Pit Setter
 - 4. Owner approved alternate.
- M. Meter Box Covers shall be cast iron, 15" diameter, side-locking with meter transponder hole.
- N. All bronze and brass parts shall be "Low Lead" meeting ASTM B 584; NSF/ANSI 61.

2.2 SERVICE LINE

- A. Service line shall be high performance, high molecular weight, high density polyethylene pipe. PE Pipe shall conform to AWWA C901, latest revision. Diameter rations shall be as required to meet nominal CTS (copper tube size). Pipe shall be rated for a maximum working pressure of 200 psi.
- B. In addition to service line, appropriately sized insert stiffeners shall be provided to permit use of polyethylene pipe with the various service materials specified herein.

2.3 CURB STOPS AND CURB BOXES

- A. Curb stops shall comply with AWWA C800, shall incorporate ball valves and shall be designed to withstand working pressures up to 300 psi.

- B. Curb stops shall be suitable for use with adjacent service line type, diameter and diameter ratio.
- C. Curb stops shall incorporate a one-piece tee head and stem.
- D. Approved Curb Stop Manufacturers/Models:
 - 1. For $\frac{3}{4}$ " service line:
 - a. Mueller B-25209N
 - b. Approved equal
- E. Extension type curb boxes shall be supplied with all curb stops. Curb box lids shall be supplied with a standard brass pentagon head plug. Curb boxes shall not incorporate stationary rods and shall be sized based on the corresponding curb stop. The upper section of the curb box shall have a minimum diameter of $1\frac{1}{4}$ ".
- F. Curb boxes shall be stabilized to restrict movement when curb stop is operated.

PART 3 - EXECUTION

3.1 TESTING

- A. All testing must be witnessed by the Engineer. Non-witnessed testing will not be accepted. Contractor shall provide engineer with 48-hour notice prior to commencing with testing.

3.2 CONNECTIONS

- A. Contractor is responsible for connecting to existing pipe where indicated in the Drawings.
- B. Expose and determine the type and diameter of existing service line and ensure that the proper fittings gaskets necessary for interface are available in advance of initiating work on the connection / meter pit installation.
- C. The Contractor shall be responsible for the valving off the service, flushing, and bleeding air from the existing line once the connection is made. The existing line shall not be valved off until the Contractor has all necessary equipment and materials at the site to make the proper connection. All work shall be performed in coordination with the Owner.
- D. Meter installation shall be coordinated with the Owner. If metering equipment is not available at the time of meter pit installation, a jumper may be installed with authorization of the Owner in order to restore and maintain water service to the customer until the metering equipment is available. Jumpers shall be supplied by the Contractor.

3.3 SERVICE LINE INSTALLATION

- A. Contractor shall install new service lines to connect interface the new meter pits.

- B. The service line shall be installed as shown on the project detail.
- C. Contractor shall provide couplings, service line, meter assemblies, insert stiffeners and related appurtenances as indicated on the Drawings.
- D. Connection of services shall only be made following completion of satisfactory pressure, leakage and disinfection testing of the section of the new main supplying the service in question.

3.4 DOCUMENTATION

- A. Contractor shall collect and document installation parameters associated with each meter pit installation as Outlined in Section 017839.
- B. Documentation shall be provided to the Owner prior to project closeout.

3.5 SPARE PARTS AND TOOLS

- A. Repair or service parts shall be furnished and stored as directed by the Owner. The equipment shall include, in general, the following items:
 - 1. Meter lifting tool (1) designed to raise the coil meter platform to an accessible level.
 - 2. Special tools required for maintenance or operation of meter pit.
 - 3. Gaskets, rings, seals, packing, lubricants, bolts, washers, operation manuals, drawings, etc., required to maintain valves in proper operating service.

END OF SECTION 331113

SECTION 331900.01 – UTILITY METERING EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Furnish new consumer utility meters with encoder registers suitable for replacing existing consumer meters.
- B. This work includes installation of new utility meter and two-way MIU capable of meeting current and future meter reading needs as defined under this Project as a turn-key project.

1.2 RELATED WORK

- A. Section 330908 – Water Meter Interface
- B. Section 331113 – Waterline Construction

1.3 REFERENCES

- A. American Water Works Association:
 - 1. AWWA C715-18 Cold-Water Meters - Electromagnetic and Ultrasonic Type for Revenue Applications
- B. International Organization for Standardization:
 - 1. ISO 9001 - Standards of Quality Management Systems.
- C. National Sanitation Foundation, NSF International:
 - 1. NSF 61 - Standards for Drinking Water System Components.
 - 2. NSF 372 - American National Standard for Lead Content in Plumbing Products.
- D. Materials and workmanship shall be in accordance with the following Standards:
 - 1. ANSI - American National Standards Institute
 - 2. AWS - American Welding Society
 - 3. CSA - CSA International- Product Testing and Certification Services
 - 4. FCC - Federal Communications Commission
 - 5. MIL - STD-810 - United States Military Standard for Environmental Engineering Considerations and Laboratory Test Standards Emphasizing Environmental Design and Test Limits.
 - 6. NEC - National Electrical Code
 - 7. NEMA - National Electrical Manufacturers Association
 - 8. UL - Underwriters Laboratory
 - 9. Regulatory Agencies: Perform all Work in compliance with the requirements of the following regulatory agencies:
 - a. OSHA - Occupational Safety and Health Administration
 - b. EPA - Environmental Protection Agency
 - c. OWNER's Building Department and Utility Departments

1.4 SYSTEM DESCRIPTION

- A. This project includes providing utility meters, capable of being read by the proposed meter reading system as specified in Section 330908.
- B. The meters and AMI manufacturer must state where all the meters, RF and collection devices are made. It is preferred that the meters and AMI System are made in the United States, in ISO 9001 manufacturing facilities. Comply with Section 330908.

1.5 BID REVIEW AND AWARD BY OWNER

- A. Award will be to the lowest and best bid, based on evaluation of the Bid Forms including: Price Proposal, Technical Proposal including meter simplicity, meter life, long-term accuracy and other criteria that the Owner deems relevant to not only life cycle costs, but efficiency of operation and maintenance; and, Bid Proposal Questions Form. Lowest price only will not be the sole factor for awarding this project.
- B. The specifications are minimum requirements. The Owner reserves the right to choose the Manufacturer which best meets the needs, requirements, budgetary, and delivery necessities of the Owner.

1.6 SUBMITTALS

- A. Submittal Procedures: Requirements for submittals: Follow Section 013300.
- B. Information to be Submitted with the Bid: Technical Proposal
 1. The Technical Proposal outline is included as part of the Bid Documents.
 2. Provide copies of all materials required to establish compliance with the specifications. Submittals shall include published documents detailing important details of construction, installation instructions including drawings and descriptive literature, bulletins and/or catalogs of equipment, operating and maintenance instructions, repair manuals, and parts manuals.
 3. Provide published terms and conditions of all warranties offered and, if warranty durations are different than specified herein, shall so note in the list of exceptions in the Technical Proposal. The Owner will not consider any third-party guarantees or warranties.
 4. Provide information on required or optional maintenance programs beyond the warranty period for both hardware and software.
 5. Manufacturers must submit any and all exceptions to the specifications. Exceptions must be listed on a sheet as part of the Technical Proposal. All exceptions will be considered with the Owner reserving the right to choose the meters, parts, and accessories which best meet the requirements of the Utility. Non-compliance in listing any exception may result in immediate rejection of the submitted bid.
- C. Submittals after Award of Contract
 1. Submit, as provided in Section 013300 of these specifications, copies of all materials required to establish compliance with the specifications. Submittals shall include shop drawings showing important details of construction, installation

instructions including drawing and descriptive literature, bulletins and/or catalogs of equipment, operating and maintenance instructions, repair manuals, and parts manuals.

2. Installation Plan. Submit detailed description of proposed installation. Indicate dimensions and tolerances, component connections and details, clearances required and installation requirements and details.
3. Product Data: Submit data on meters and meter setting equipment and accessories. Submit manufacturer's literature and data indicating rated capacities, dimensions, weights and point loads. Indicate accessories, electrical characteristics and connection requirements, wiring diagrams, and location and sizes of field connections.
4. Samples: Submit two sample meters one of each size representing a small 5/8-inch meter and a 2-inch or larger size meter illustrating materials of construction and finishes.
5. Design Data: Submit manufacturer's latest published literature; include illustrations, installation instructions, maintenance instructions, and spare parts lists.
6. Submit an affidavit of compliance from the meter manufacturer or supplier that the meters provided; comply with all applicable requirements of AWWA C700 and AWWA C707, and these specifications.
7. Submit a Certificate of Testing for accuracy from the manufacturer for each meter furnished, stating that the meter has been tested for accuracy of registration and that it complies with the accuracy and capacity requirements of AWWA C700 and AWWA C707.
8. Manufacturer's Certificates: Submit Statement of Compliance, supporting data, from material suppliers attesting that valves and accessories provided meet or exceed AWWA Standards and specification requirements.

D. Manufacturer's Field Reports: Provide field reports for each site and include pre-install and post-install photographs, serial numbers for each component, coordinates, size, type, and other pertinent data.

1.7 QUALITY ASSURANCE

- A. All named manufacturer's products must meet the applicable specifications in full, regardless of the appearance of the manufacturer's name.
- B. The proposed system, including the utility meter, register, and transmitter, shall be the product of one manufacturer and shall be covered by the same manufacturer's warranty to avoid future problems with product compatibility, problems in determining which component caused the failure, and determining which company the Owner needs to pursue in the event of manufacturing defects.
- C. Manufacturing: Meters supplied shall be from a company that has manufactured utility meter for at least ten (10) years and who manufacturers all type and size meters indicated in these specifications. The specific models being supplied must have been in successful and continuous municipal service for at least two (2) years.

- D. Meters: Manufacturer's name, model number, and serial number shall be permanently marked on each meter body.

1.8 QUALIFICATIONS

- A. Manufacturer: Must be a Company specializing in manufacturing Products and materials specified in this Section with a minimum of ten (10) years documented experience in this type of manufacturing.
- B. Installer: Company specializing in performing Work with minimum five (5) years documented experience or as approved by manufacturer.

1.9 WARRANTY

- A. In evaluating bid submittals, warranty coverage will be considered. The Manufacturer shall be required to state its warranty and/or guarantee policy with respect to each item of proposed equipment.
- B. Provide manufacturer's written warranty, running to the benefit of Owner, agreeing to correct, or at option of Owner, remove or replace materials or equipment specified in this Section found to be defective during the standard manufacturer's warranty after the date of delivery unless modified below.
- C. Meters shall be guaranteed to meet AWWA New Meter Accuracy Standards for a period of five (5) years from the date of delivery for meters 1-inch and smaller. Meter cases shall be guaranteed to be free from defects for twenty-five (25) years.
- D. Registers shall be warranted for at least ten (10) years from the date of delivery.

1.10 MAINTENANCE SERVICE AND SUPPORT

- A. Information outlining the method to coordinate warranty service on meters shall be outlined within the submittal documentation.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall protect meters and meter components from weather, moisture, possible damage, and theft by storing in a secure facility covered dry storage and staging location.
- B. The Contractor shall be responsible for storage of all meters and other parts mentioned in this Section until installation, start-up, and acceptance.
- C. The Installer shall be responsible for unloading and loading of products and materials.
- D. The Owner reserves the right to inspect ALL and accept all meters, meter components, and related system components on site. They shall be in original sealed manufacturers shipping containers with labeling in place.

- E. The Contractor shall at his own expense replace all rejected meters and system components. All meters and system components shall be properly boxed to protect them against damage in shipment. Meters and system components may be rejected by the Owner when damage to the container indicates the possibility of damage to the meter or system components.

1.12 OWNER PROVIDED SERVICES/RESPONSIBILITIES

- A. The Owner will provide one existing meter reading device currently used to Contractor to get final reads. If Contractor desires more units, he shall provide as necessary at Contractor's cost.
- B. The Owner will provide the installer with a master account document, indicating account number, site address, customer name, meter size, and location for each meter scheduled for replacement, if known.
- C. The Owner will provide assistance to coordinate access to meter locations following Contractor's required attempts as outlined herein.

PART 2 - PRODUCTS

2.1 UTILITY METERS

- A. General: All cold-water meters (solid state type 5/8" - 2") furnished shall be produced in an ISO 9001 certified manufacturing facility that meets or exceeds the accuracy requirements specified in the "Standard Specifications for Cold Water Meters" C715 latest revision issued by AWWA. All new meters must be provided by a single meter manufacturer.
- B. Lead Free Legislation: All water meters submitted in this proposal be compliant with NSF/ANSI 61, which exceeds the requirements of NSF/ANSI 372 that became effective January 2014. In addition, meters shall be made of "lead free" high-copper alloy as defined by NSF/ANSI 61.
- C. Meter Type: Only meters featuring solid state metrology will be accepted because of enhanced low-flow accuracy performance and extended accuracy over meter life.
- D. Measurement Technology: The measurement technology shall be based on ultrasonic sensing featuring no moving parts.
- E. Size / Capacity / Length: The meter's size, capacity, and length shall be as specified in AWWA Standard C715 (latest revision).
- F. Main Case:
 - 1. The meter main case shall be made cast from NSF/ANSI 61 certified lead-free alloy containing a minimum of 85% copper. Plastic main cases or flow tubes are not acceptable as the spuds are susceptible to cross-threading or breaking during installation, or from pipe stress over time.

2. The serial number should be displayed in a permanent location on the register.
 3. Meter markings shall indicate size, model, direction of flow, and NSF 61 certification.
 4. All lead-free main cases shall be guaranteed free from manufacturing defects in workmanship and material for the warranted life of the meter.
 5. All main case screws or bolts shall be of 300 series non-magnetic stainless steel to prevent corrosion.
- G. Electronic Register: The solid-state meter electronic enclosure shall be constructed of a durable engineered composite designed to last the life of the meter. The meter shall provide a fully potted wire connection for use with AMR/AMI devices.
- H. Environmental: The solid-state meter must feature fully potted electronics and battery for submersion in flooded meter pits.
- I. Registration:
1. The register shall provide at least a 9-digit visual registration at the meter.
 2. The register shall provide an 8-digit meter reading for transmission through the RF AMR/AMI endpoint.
 3. The register shall employ a visual LCD leak detection indicator as well as provide remote leak detection through an ASCII format to the RF AMR/AMI endpoint.
 4. The register shall provide reverse flow detection, communicated as ASCII format data to the RF AMR/AMI endpoint.
 5. The register shall provide an indication of days of zero consumption, communicated as ASCII format data to the RF AMR/AMI endpoint.
 6. The register should accumulate and register consumption without connecting to a receptacle or RF AMR/AMI endpoint. The register shall display flow rate information (interleaved with the current meter reading).
 7. The register shall subtract reverse flow from the total registration.
- J. Strainers: Solid state meters shall not require a strainer for accurate operation.
- K. Performance: Meter manufacturer's solid-state meters shall exceed AWWA C715 accuracy standards and warrant their published accuracy levels for the life of their meters. Each meter shipment must be accompanied by factory test data showing the accuracy of the meter as tested at their factory.
- L. Manufacturer: Manufacturers shall be a member of AWWA with a minimum of twenty-five (25) years of field and production experience in water measurement technologies and serving water utilities in the United States.
- M. Compatibility: All solid-state meters shall be guaranteed compatible with the proposed AMR/AMI system without special programming of the meter.
- N. Technology Preference: It is the utility's preference that the solid state meter technology provided be ultrasonic-based technology featuring continuous measurements greater or equal to 4 times per second) to ensure desired accuracy at low-end flows and during typical start/stop conditions.

- O. Acceptable Meter Equipment:
 - 1. Neptune MACH 10
 - 2. Xylem/Sensus iPERL
 - 3. Approved equal.

- P. Meter Equipment Size:
 - 1. Residential Water Meters: 5/8" x 3/4"
 - 2. Commercial Meter Locations: Coordinate size with utility.

PART 3 - EXECUTION

3.1 PRE-INSTALLATION MEETINGS

- A. Attend a pre-installation meeting to review project, worksites, storage, office, personnel, etc.

- B. The meeting will take place one month prior to the start of installation work associated with this project.

3.2 PREPARATION

- A. Verify existing conditions at each site prior to commencing work at that site.

- B. Identify required lines, levels, contours and datum locations.

- C. Locate, identify and protect utilities to remain from damage.

- D. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
 - 1. Notify the Owner not less than 2 days in advance of proposed utility interruption.
 - 2. Do not proceed without written permission from the Owner.

- E. The Owner will coordinate with the Contractor during implementation of this Project to locate curb boxes, existing services and to coordinate utility interruptions. The Contractor is responsible for initial scheduling and coordination with customers to coordinate service interruptions. If, after the Contractor has completed the outlined coordination steps, an appointment has not been scheduled for the work, Owner personnel will aid with customer interface. The Owner will provide notification in its billing to inform customers that the Contractor is performing the designated work and that limited-service interruptions may result.

3.3 SAFETY

- A. Background Checks - All Contractor personnel that may potentially be involved in private property installations will be subject to a background check by the Owner's Police Department. Drug and alcohol testing will also be required. The Owner reserves the right to remove Contractor personnel from the project if they are deemed to pose a risk to the customers on the water system.

- B. Identification - All Installer personnel shall wear shirts identifying the organization they are representing and shall have a photo identification card clearly visible on the exterior of their clothing. Identification shall list their first and last name, the name of the organization they represent and a contact number for the organization. Additionally, the vehicles shall have identification of the organization they represent. Should the Police Department determine that Owner issued identification is appropriate, this shall be clearly visible as well and worn at all times. The installer shall carry business cards with contact information to leave with residents and businesses.
- C. The Contractor shall have the primary responsibility for the supervision, initiation, and maintenance of all safety precautions and programs necessary to complete its Work associated with the Project. The Contractor agrees to comply with all applicable regulations, ordinances, and laws relating to safety. It shall be the responsibility of the Owner, however, to ensure that the sites controlled by the Owner at which the Contractor is expected to do its Work are safe sites.
- D. The Contractor shall be solely responsible for complying with all federal, state, and local safety requirements, together with exercising precautions at all times for the protection of persons (including employees) and public and private property. It is also the sole responsibility of the Contractor to initiate, maintain, and supervise all safety requirements, precautions, and programs in connection with the Work. Submit Safety Plan prior to the Pre-Installation Meeting.
- E. Completion of a training program on safety, what to do in an emergency, customer complaints, and problems with meter installations.

3.4 SCHEDULING

- A. Since all meters are to be located outside, it is not necessary to coordinate access to customer residences or properties, however, as service interruption will occur, coordination and sequencing will be required. Contractor shall:
 - 1. Establish Work schedules that will minimize customer inconvenience.
 - 2. Contractor Work schedules shall be subject to the Owner's approval.
- B. Work hours for installation of the meter equipment shall be arranged by the Contractor and coordinated with the Owner. The following parameters shall apply:
 - 1. Meter installations shall only occur during regular work hours, Monday through Friday, unless specific arrangements are made in advance with the Owner and property owner.
 - 2. Water service to any location shall be restored at the end of the workday. No service interruption shall extend overnight, over a weekend or through a holiday period.
 - 3. Preliminary notice shall be provided to a service location a minimum of 72 hours in advance of the proposed meter installation and service interruption. A designated time frame for the work to occur shall be provided as a part of the notice. Preliminary notice methods shall be approved by the Owner but shall at a minimum include "door-hangers".

3.5 COORDINATION

- A. Coordinate all work with the Owner.
- B. Provide a project manager to coordinate all installation activities. The project manager will also coordinate all installation activities with the meter company and contract installation crews hired by the Manufacturer to install any equipment that is the responsibility of Manufacturer.
- C. In the event that locations exist where conditions prevail which require nonstandard work (i.e. move a service location etc., move fences for or other customer structures & items for access, install systems in heavy traffic locations alleys, parking lots, resize of services, etc.), coordinate with the Owner prior to proceeding with any work.
- D. In the case of commercial customers such as: schools, hospitals, nursing homes or any other commercial customer, special efforts will be made to ensure minimum disruption to their water needs. In order to prevent any damage from running flush valves or any other plumbing fixtures that are sensitive to water shutoffs, the Installer will schedule replacements with these commercial customers and will notify the maintenance personnel when turning the water back on at these facilities. Regardless of any effort of the Installer, ultimate responsibility of any and all fixtures inside buildings will remain the responsibility of the end user and/or Owner as detailed in the Utility's regulations.

3.6 CLEANING AND DISPOSAL

- A. The Installer will be responsible for keeping the Project area free from the accumulation of waste materials or trash that result from the Project-related Work. Upon completion of the initial Project-related Work, the Installer will remove all waste materials, trash, tools, construction equipment and supplies, and shall remove all surplus materials associated with the Project.

3.7 ADDITIONAL WORK AS AUTHORIZED

- A. Any additional Work requested by the Owner will be performed as outlined with the supplemental bid items as outlined in the contract or on a negotiated time and material basis. The Owner reserves the right to review each situation and make final decision regarding whether the additional work is the responsibility of, and therefore at the expense of, the Installer, homeowner/water customer, or Owner.

3.8 PROTECTION OF FINISHED WORK

- A. Protect finished work until it is placed into service, inspected by the Owner/Engineer, and turned over to the Owner.

3.9 DATABASE MANAGEMENT

- A. The Installer or its agents shall be required to acquire certain data as it completes the aforementioned installation work. This data shall include: the current meter reading, the

new meter serial number, GPS coordinates for the location of the work and other data as outlined in Section 017839 as required for the Record Drawings. This information will be acquired and delivered to the utility in an electronic format that meets the Owner's requirements.

- B. The Owner requires that the Installer provide database management services to ensure the accuracy of the records in the system. The following items must be addressed in this service:
 - 1. Name and address verification and correction
 - 2. Telephone number verification and correction
 - 3. Owner identification number verification and correction
 - 4. Meter identification number verification and correction.

3.10 TRAINING

- A. Complete installation and operating instructions must be included for all supplied meters.
- B. The Contractor shall provide no less than two (2) 8-hour training days to Owner field and office staff on all aspects of product installation and maintenance. This training will take place at an Owner-designated location and at times coordinated with the Owner.

END OF SECTION 331900.01