

**FINANCE DEPARTMENT
DIVISION OF PURCHASES & SUPPLIES**



Sheldon A. Neeley, Mayor

PROPOSAL #22000527

PHASE VII FAST START SERVICE LINE REPLACEMENT: EXCAVATION AND RESTORATION (SLE/SLR)

Date Posted: 6/10/22

PROPOSAL NO. 22000527**CITY OF FLINT****FINANCE DEPARTMENT****DIVISION OF PURCHASES AND SUPPLIES**

City Hall, 1101 S. Saginaw Street, Room #203 – Flint, Michigan 48502
(810) 766-7340 www.cityofflint.com



Sheldon Neeley
Mayor

REQUEST FOR PROPOSALS**OWNER/RETURN TO:**

THE CITY OF FLINT
FINANCE DEPARTMENT – DIVISION OF PURCHASES AND SUPPLIES
1101 S. SAGINAW ST., ROOM 203, 2nd FLOOR
FLINT, MI 48502

PROPOSAL # 22000527**SCOPE OF WORK:**

The City of Flint, Finance Department of Purchases & Supplies, is soliciting sealed bids for providing:

PHASE VII FAST START SERVICE LINE REPLACEMENT: EXCAVATION AND RESTORATION (SLE/SLR)

Per the attached additional requirements.

If your firm is interested in providing the requested services, please submit:

Submit to City:

- 1 original printed, signed, original proposals and signed addenda
- 3 additional hard copies unbound
- 1 electronic copy of your bid

Proposal submittal information MUST be received by the following dates and times:

1. The mail in **HARD COPY** with the original signature (signed documents) must be received by **Monday, June 27, 2022, by 11:00 A.M. (EST)**, **City of Flint, Finance Department - Division of Purchases and Supplies, 1101 S. Saginaw St., Room 203, Flint, MI, 48502**. Bids must be in a sealed envelope clearly identifying the proposal name and proposal number.
2. **Electronic Copy**, please email to **PurchasingBids@cityofflint.com** by **Monday, June 27, 2022 by 11:00 AM (EST)**. Please note that in the subject line of the email, type in the proposal name and number.
2. Faxed bids are not accepted.
3. Both mail in proposal and electronic submittal must be received by due date and time.

PLEASE NOTE: When dropping off a bid, please do not put bids in drop boxes on the outside of City Hall. Please call if you have any questions and need to drop off a bid.

All additional proposal documents, requirements, addendums, specifications, and plans/drawings (if utilized) are available on the Purchasing page of the City of Flint's web site at <https://www.cityofflint.com/finance/purchasing/bids-2/> under "open bids" and the specific bid or proposal number assigned to this notice.

Effective immediately upon release of these Bidding Documents, and until notice of contract award, all official communications from proposers regarding the requirements of this Bid shall be directed to:

Lauren Rowley
810-766-7340

lrowley@cityofflint.com

The City, or designee, shall distribute all official changes, modifications, responses to questions or notices relating to the requirements of this Bid. Addendum to this Bid may be developed and shared with all Vendors. Any other information of any kind from any other source shall not be considered official, and proposers relying on other information do so at their own risk.

NOTICE TO VENDOR Offers, subject to the conditions made a part hereof, will be received at this office, ***1101 S. Saginaw St., Flint, MI 48502 for the following:***

All additional proposal documents, requirements, addendums, specifications, and plans/drawings (if utilized) are available on the Purchasing page of the City of Flint's web site at <https://www.cityofflint.com/finance/purchasing/bids-2/> under "open bids" and the specific bid or proposal number assigned to this notice.

New vendors should complete and submit a vendor application, IRS W-9 Form, and Vendor ACH Payment Authorization Form with the City of Flint. Links to these forms are available at <https://www.cityofflint.com/finance/accounts-payable-department/>.

Results may be viewed next business day online EXCEPT when a bid is under review. The bidders/public will only see the names of the bidders that submitted a bid, not their cost. This will protect the bidders cost in case there is a re-bid.

<https://www.cityofflint.com/finance/purchasing/results/> under "bid results".

City of Flint has partnered with BidNet as part of the [MITN Purchasing Group](#) (branded page link) to post bid opportunities to this site. As a vendor, you can register with the [MITN Purchasing Group](#) and be sure that you see all available bids and opportunities. By selecting automatic bid notification, your company will receive emails once the City of Flint has a bid opportunity that matches your company's business. In addition, the site handles bid opportunities, RFPs, and RFQs for other member governmental agencies throughout Michigan. City of Flint looks forward to providing you with more bid information and simplifying the entire bid, proposal, and quote processes for everyone involved. We appreciate your cooperation and welcome your participation. If you need help registering, please call the MITN Purchasing Group support department toll free 1-800-835-4603 option #2.

Link to City of Flint open solicitations:

[MITN Purchasing Group](#) (branded page link)

Any written questions regarding this project shall be directed to Lauren Rowley, Purchasing Manager at lrowley@cityofflint.com using the subject title of "RFP #22-527 – PHASE VII FAST START SERVICE LINE REPLACEMENT: EXCAVATION AND RESTORATION (SLE/SLR)." Questions must be submitted by Friday, June 17, 2022 before 10:00 A.M. (EST). Please see attached form for Question submittal form.

Mandatory Pre-Bid Meeting

A mandatory pre-bid meeting regarding this RFP will be held on Wednesday, June 15th at 10:00 AM EST at the City of Flint McKenzie Conference Room 2nd Floor, 1101 S. Saginaw Street, Flint, MI, 48502. Prospective bidders are to meet here, with a department being present to give a detailed presentation regarding this project. This will be the only venue that potential contractors will be able to have a face-to-face conversation with Purchasing, Department of Public Works (DPW), Traffic Engineering, and all other officials involved with this project. This venue will also allow contractors to ask any questions concerning this Project. Failure to attend this meeting may result in disqualification of your bid.

Interested bidders MUST submit a notice of intent in writing to attend the pre-bid meeting to Lauren Rowley, Purchasing Manager at lrowley@cityofflint.com by Tuesday, June 14th at 12:00 P.M.

Bid Opening Due Date – Monday, June 27, 2022 at 11:00 A.M.

Bid Opening via Google Meet. The public is invited to view the opening by joining the Google Meet link below:

Join with Google Meet

Meeting ID

meet.google.com/fcx-kmru-eqq

Phone Numbers

+1 626-775-7049

PIN: 277 499 279#

IN PERSON

The public is invited to view the bid opening in person by attending at McKenzie Conference Room, 2nd Floor, 1101 S. Saginaw St., Flint, MI 48502.

If you have any problems signing in, please email purchasingbids@cityofflint.com.

Sincerely,



Lauren Rowley
Purchasing Manager

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INSTRUCTIONS TO VENDORS

- 1) **PRE-BID INFORMATION AND QUESTIONS:** Each bid that is timely received will be evaluated on its merit and completeness of all requested information. In preparing bids, Bidders are advised to rely only upon the contents of this Request for Proposals (RFP) and accompanying documents and any written clarifications or addenda issued by the City of Flint. If a Bidder finds a discrepancy, error or omission in the RFP package, or requires any written addendum thereto, the Bidder is requested to notify the Purchasing contact noted on the cover of this RFP, so that written clarification may be sent to all prospective Bidders. **THE CITY OF FLINT IS NOT RESPONSIBLE FOR ANY ORAL INSTRUCTIONS.** All questions must be submitted in writing to the Finance Department of Purchases and Supplies before any pre-bid deadline (if specified) or at least one (1) week prior to the proposal opening date indicated on the front of this document.
- 2) **RFP MODIFICATIONS:** The City of Flint has the right to correct, modify or cancel the RFP, in whole or in part, or to reject any Bid, in whole or in part, within the discretion of the City of Flint, or their designee. If any such changes are made, all known recipients of the RFP will be sent a copy of such changes. If any changes are made to this RFP document by any party other than the City of Flint, the original document in the City of Flint's files takes precedence.
- 3) **PROPOSAL SUBMISSION:**
 - a) The Bidder must include the following items, or the proposal may be deemed non-responsive:
 - i) All forms contained in this RFP, fully completed.
 - b) Bids must be submitted to the Finance Department of Purchases and Supplies, City of Flint, 1101 S. Saginaw Street, Room 203, Flint, Michigan 48502 by the date and time indicated as the deadline. The Purchasing Department time stamp will determine the official receipt time. It is each Bidder's responsibility to insure that their proposal is time stamped by the Purchasing Department by the deadline. This responsibility rests entirely with the Bidder, regardless of delays resulting from postal handling or for any other reasons. Proposals will be accepted at any time during the normal course of business only, said hours being 8:00 a.m. to 5:00 p.m. local time, Monday through Friday, legal holidays as exception.
 - c) Bids must be enclosed in a sealed, non-transparent envelope, box or package, and clearly marked on the outside with the following: RFP Title, RFP Number, Deadline and Bidder's name.
 - d) Submission of a bid establishes a conclusive presumption that the Bidder is thoroughly familiar with the Request for Proposals (RFP), and that the Contractor understands and agrees to abide by each and all of the stipulations and requirements contained therein.
 - e) All prices and notations must be typed or printed in ink. No erasures are permitted. Mistakes may be crossed out and corrections must be initialed in ink by the person(s) signing the bid.
 - f) Proposals sent by email, facsimile, or other electronic means will not be considered unless specifically authorized in this RFP.

- g) All costs incurred in the preparation and presentation of the bid are the Bidder's sole responsibility; no pre-bid costs will be reimbursed to any Bidder. All documentation submitted with the proposal will become the property of the City of Flint.
- h) Proposals must be held firm for a minimum of 120 days.
- 4) **EXCEPTIONS:** Bidder shall clearly identify any proposed deviations from the Terms or Scope in the Request for Proposals. Each exception must be clearly defined and referenced to the proper paragraph in this RFP. The exception shall include, at a minimum, the proposed substitute language and opinion as to why the suggested substitution will provide equivalent or better service and performance. If no exceptions are noted in the bid, the City of Flint will assume complete conformance with this specification and the successful Bidder will be required to perform accordingly. Bids not meeting all requirements may be rejected.
- 5) **DUPLICATE BIDS:** No more than one (1) bid from any Bidder including its subsidiaries, affiliated companies and franchises will be considered by the City of Flint. In the event multiple proposals are submitted in violation of this provision, the City will have the right to determine which bid will be considered or, at its sole option, reject all such multiple proposals.
- 6) **WITHDRAWAL:** Bids may only be withdrawn by written notice prior to the date and time set for the opening of bids. No bid may be withdrawn after the deadline for submission.
- 7) **REJECTION/GOOD STANDING:** The City of Flint reserves the right to reject any or all bids, or to accept or reject any bid in part, and to waive any minor informality or irregularity in bids received if it is determined by the City of Flint, or their designee, that the best interest of the City will be served by doing so. No bid will be considered from any person, firm or corporation in arrears or in default to the City on any contract, debt, taxes or other obligation, or if the Bidder is debarred by the City of Flint from consideration for a contract award pursuant to Section 18-21.5 (d) of Article IV of the "Purchasing Ordinance of the City of Flint".
- 8) **PROCUREMENT POLICY:** Procurement for the City of Flint will be handled in a manner providing fair opportunity to all businesses. This will be accomplished without abrogation or sacrifice of quality and as determined to be in the best interest of the City. The City of Flint and their officials have the vested authority to execute a contract, subject to City Council and Mayoral approval where required.
- 9) **BID SIGNATURES:** Bids must be signed by an authorized official of the Bidder. Each signature represents binding commitment upon the Bidder to provide the goods and/or services offered to the City of Flint if the Bidder is determined to be the lowest Responsive and Responsible Bidder.
- 10) **CONTRACT AWARD/SPLIT AWARDS:** The City of Flint reserves the right to award by item and/or group of items. The Bidder to whom the award is made will be notified at the earliest possible date. Tentative acceptance of the bid, intent to recommend award of a contract and actual award of the contract will be provided by written notice sent to the Bidder at the address designated in the bid if a separate Agreement is required to be executed. After a final award of the Agreement by the City of Flint, the

Contractor/Vendor must execute and perform said Agreement. All proposals must be firm for at least 120 days from the due date of the proposal. If, for any reason, a contract is not executed with the selected Bidder within 14 days after notice of recommendation for award, then the City may recommend the next lowest responsive and responsible Bidder.

- 11) **NO RFP RESPONSE:** Bidders who receive this RFP but who do not submit a bid should return this RFP package stating “No Bid” and are encouraged to list the reason(s) for not responding. Failure to return this form may result in removal of the Bidder’s name from all future lists.
- 12) **FREEDOM OF INFORMATION ACT (FOIA) REQUIREMENTS:** Bids are subject to public disclosure after the deadline for submission in accordance with state law.
- 13) **ARBITRATION:** Contractor/Vendor agrees to submit to arbitration all claims, counterclaims, disputes and other matters in question arising out of or relating to this agreement or the breach thereof. The Contractor’s/Vendor’s agreement to arbitrate shall be specifically enforceable under the prevailing law of any court having jurisdiction to hear such matters. Contractor’s/Vendor’s obligation to submit to arbitration shall be subject to the following provisions:
- a) Notice of demand for arbitration must be submitted to the City in writing within a reasonable time after the claim, dispute or other matter in question has arisen. A reasonable time is hereby determined to be fourteen (14) days from the date the party demanding the arbitration knows or should have known the facts giving rise to their claim, dispute or question. In no event may the demand for arbitration be made after the time when institution of legal or equitable proceedings based on such claim dispute or other matters in question would be barred by the applicable statute of limitation.
 - b) Within fourteen (14) days from the date that demand for arbitration is received by the City, each party shall submit to the other the name of one person to serve as an arbitrator. The two arbitrators together shall then select a third person, the three together shall then serve as a panel in all proceedings. Any decision concurred in by a majority of the three shall be a final binding decision.
 - c) The final decision rendered by said arbitrators shall be binding and conclusive and shall be subject to specific enforcement by a court of competent jurisdiction.
 - d) The costs of the arbitration shall be split and borne equally between the parties and such costs are not subject to shifting by the arbitrator.
 - e) This provision shall survive the expiration or termination of this Agreement in perpetuity.
- 14) **BID HOLD:** The City of Flint may hold bids for a period of one hundred twenty (120) days from opening, for the purpose of reviewing the results and investigating the qualifications of bidders prior to making an award.
- 15) **NONCOMPLIANCE:** Failure to deliver in accordance with specifications will be cause for the City of Flint and they may cancel the contract or any part thereof and purchase on the open market, charging any

additional cost to the Contractor/Vendor.

- 16) **DISCLAIMER OF CONTRACTUAL RELATIONSHIP:** Nothing contained in these documents shall create any contractual relationship between the City and any Subcontractor or Sub-subcontractor.
- 17) **ERRORS AND OMISSIONS:** Bidder is not permitted to take advantage of any obvious errors or omissions in specifications.
- 18) **INTERPRETATION:** In the event that any provision contained herein shall be determined by a court of competent jurisdiction or an appropriate administrative tribunal to be contrary to the provision of law or to be unenforceable for any reason, then, to the extent necessary and possible to render the remainder of this Agreement enforceable, such provision may be modified or severed by such court or administrative tribunal having jurisdiction over this Agreement and the interpretation thereof, or the parties hereto, so as to, as nearly as possible, carry out the intention of the parties hereto, considering the purpose of the entire Agreement in relation to such provision.
- 19) **LAWS AND ORDINANCES:** The Bidder shall obey and abide by all of the laws, rules and regulations of the Federal Government, State of Michigan, Genesee County and the City of Flint, applicable to the performance of this Agreement, including, but not limited to, labor laws, and laws regulating or applying to public improvement, local government, and its operational requirements.
- 20) **LOCAL PREFERENCE:** Contractors/bidders located within the corporate city limits of Flint, Michigan may be given a seven percent (7%) competitive price advantage. Additionally, if the lowest responsible bidder is not located within the limits of the City of Flint, but is located within the County of Genesee, and said bidder does not exceed the bid of the lowest non-local bidder by more than three and one-half percent (3-1/2%), then said lowest Genesee County bidder may be determined to be the lowest responsible bidder, and make the award to such Genesee County bidder accordingly, subject to the approval of the City Council. If the lowest non-local bidder does not exceed that of any Proposers/bidders by (7%) inside the City of Flint or (3-1/2%) inside the County of Genesee, then the Purchasing Director shall be allowed to request that the lowest local vendor match the price offered by the lowest non-local vendor.
- 21) **MATERIAL WORKMANSHIP AND STANDARDS OF PERFORMANCE:** The Bidder agrees to exercise independent judgment and to complete performance under this Agreement in accordance with sound professional practices. In entering into this Agreement, the City is relying upon the professional reputation, experience, certification and ability of the Bidder by her/him/themselves or by others employed by her/him/them and working under their direction and control. The continued effectiveness of this Agreement during its term or any renewal term shall be contingent, in part, upon the Bidder maintaining her/his/their operating qualifications in accordance with the requirements of federal, state and local laws. All materials furnished must be new, of latest model and standard first grade quality, or best workmanship and design, unless otherwise expressly specified. Bidder, if required, must furnish satisfactory evidence of quality materials; offers of experimental or unproven equipment may be disregarded.

- 22) **MODIFICATIONS/CHANGES:** Any modification to this agreement must be in writing and signed by the authorized employee, officer, board or council representative authorized to make such modifications pursuant to the State law and local ordinances.
- 23) **NON-COLLUSION:** The Bidder acknowledges that by signing this document that she/he/they is/are duly authorized to make said offer on behalf of the company she/he/they represent(s) and that said bid is genuine and not sham or collusive and not made in the interests or on behalf of any person not therein named, and that she/he/they and said bidder have not directly induced or solicited any other person(s) or corporation to refrain from responding to this solicitation and that she/he/they and said bidder have not in any manner sought by collusion to secure to themselves and said bidder any advantage over any other bidder.
- 24) **NON-DISCRIMINATION:** Pursuant to the requirements of 1976 P.A. 453 (Michigan Civil Rights Act) and 1976 P.A. 220 (Michigan Handicapped Rights Act), the local unit and its agent agree not to discriminate against any employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment or a matter directly or indirectly related to employment because of race, color, religion, national origin, age, sex, height, weight, marital status or because of a handicap that is unrelated to the person's ability to perform the duties of nondiscrimination provision identical to this provision and binding upon any and all contractors and subcontractors. A breach of this covenant shall be regarded as a material breach of this contract.
- 25) **SUBCONTRACTING:** No subcontract work shall be started prior to the written approval of the subcontractor by the City. The City reserves the right to accept or reject any subcontractor.
- 26) **UNION COMPLIANCE:** Bidder agrees to comply with all regulations and requirements of any national or local union(s) that may have jurisdiction over any of the materials, facilities, services or personnel to be furnished by the City.
- 27) **WAIVER:** Failure of the City to insist upon strict compliance with any of the terms, covenants or conditions of this Agreement shall not be deemed a waiver of that term, covenant or condition or of any other term, covenant or condition. Any waiver or relinquishment of any right or power hereunder at any one or more times shall not be deemed a waiver or relinquishment of that right or power at any other time.
- 28) **CITY INCOME TAX WITHHOLDING:** Contractor and any subcontractor engaged in this contract shall withhold from each payment to his employees the City income tax on all of their compensation subject to tax, after giving effect to exemptions, as follows:
- a) Residents _____ of _____ the _____ City:
At a rate equal to 1% of all compensation paid to the employee who is a resident of the City of Flint.
 - b) Non-residents:
At a rate equal to 1/2% of the compensation paid to the employee for work done or services performed in the City of Flint.

These taxes shall be held in trust and paid over to the City of Flint in accordance with City

ordinances and State law. Any failure to do so shall constitute a substantial and material breach of this contract.

- 29) **CONTRACT DOCUMENTS:** The invitation for proposal, instructions to proposal, proposal, affidavit, addenda (if any), statement of Bidder's qualifications (when required), general conditions, special conditions, performance bond, labor and material payment bond, insurance certificates, technical specifications, and drawings, together with this agreement, form the contract, and they are as fully a part of the contract as if attached hereto or repeated herein.
- 30) **DISCLAIMER OF CONTRACTUAL RELATIONSHIP WITH SUBCONTRACTORS:** Nothing contained in the Contract Documents shall create any contractual relationship between the City and any Subcontractor or Sub-subcontractor.
- 31) **EFFECTIVE DATE:** Any agreement between the City and the Bidder shall be effective upon the date that it is executed by all parties hereto.
- 32) **FORCE MAJEURE:** Neither party shall be responsible for damages or delays caused by Force Majeure nor other events beyond the control of the other party and which could not reasonably have anticipated the control of the other party and which could not reasonably have been anticipated or prevented. For purposes of this Agreement, Force Majeure includes, but is not limited to, adverse weather conditions, floods, epidemics, war, riot, strikes, lockouts, and other industrial disturbances; unknown site conditions, accidents, sabotage, fire, and acts of God. Should Force Majeure occur, the parties shall mutually agree on the terms and conditions upon which the services may continue.
- 33) **INDEMNIFICATION:** To the fullest extent permitted by law, Bidder agrees to defend, pay on behalf of, indemnify, and hold harmless the City of Flint, its elected and appointed officials, employees and volunteers and others working on behalf of the City of Flint, including the Project Manager, against any and all claims, demands, suits, or losses, including all costs connected therewith, and for any damages which may be asserted, claimed, or recovered against or from the City of Flint, its elected and appointed officials, employees, volunteers or others working on behalf of the City of Flint, by reason of personal injury, including bodily injury or death and/or property damage, including loss of use thereof, which may arise as a result of Bidder's acts, omissions, faults, and negligence or that of any of his employees, agents, and representatives in connection with the performance of this contract. Should the Bidder fail to indemnify the City in the above-mentioned circumstances, the City may exercise its option to deduct the cost that it incurs from the contract price forthwith.

These provisions shall survive the termination or expiration of any agreement entered into as a result of this request.

- 34) **INDEPENDENT CONTRACTOR:** No provision of this contract shall be construed as creating an employer-employee relationship. It is hereby expressly understood and agreed that Bidder is an "independent contractor" as that phrase has been defined and interpreted by the courts of the State of Michigan and, as such, Bidder is not entitled to any benefits not otherwise specified herein.
- 35) **NO THIRD-PARTY BENEFICIARY:** No contractor, subcontractor, mechanic, material man, laborer, vendor, or other person dealing with the principal Contractor shall be, nor shall any of them be deemed to be, third-party beneficiaries of this contract, but each such person shall be deemed to have agreed (a) that they shall look to the principal Contractor as their sole source of recovery if not paid, and (b) except as otherwise agreed to by the principal Contractor and any such person in writing, they may not enter any claim or bring any such action against the City under any circumstances. Except as provided by law, or as otherwise agreed to in writing between the City and such person, each such person shall be deemed to have waived in writing all rights to seek redress from the City under any circumstances whatsoever.
- 36) **NON-ASSIGNABILITY:** Contractor shall not assign or transfer any interest in this contract without the prior written consent of the City provided, however, that claims for money due or to become due to Contractor from the City under this contract may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.
- 37) **NON-DISCLOSURE/CONFIDENTIALITY:** Contractor agrees that the documents identified herein as the contract documents are confidential information intended for the sole use of the City and that Contractor will not disclose any such information, or in any other way make such documents public, without the express written approval of the City or the order of the court of appropriate jurisdiction or as required by the laws of the State of Michigan.
- 38) **RECORDS PROPERTY OF CITY:** All documents, information, reports and the like prepared or generated by Contractor as a result of this contract shall become the sole property of the City of Flint.
- 39) **SEVERABILITY:** In the event that any provision contained herein shall be determined by a court or administrative tribunal to be contrary to a provision of state or federal law or to be unenforceable for any reason, then, to the extent necessary and possible to render the remainder of this Agreement enforceable, such provision may be modified or severed by such court or administrative tribunal so as to, as nearly as possible, carry out the intention of the parties hereto, considering the purpose of the entire Agreement in relation to such provision. The invalidation of one or more terms of this contract shall not affect the validity of the remaining terms.
- 40) **TERMINATION:** This contract may be terminated by either party hereto by submitting a notice of termination to the other party. Such notice shall be in writing and shall be effective 30 days from the date it is submitted unless otherwise agreed to by the parties hereto. Contractor, upon receiving such

notice and prorated payment upon termination of this contract shall give to the City all pertinent records, data, and information created up to the date of termination to which the City, under the terms of this contract, is entitled.

- 41) **TIME PERFORMANCE:** Contractor's services shall commence immediately upon receipt of the notice to proceed and shall be carried out forthwith and without reasonable delay.
- 42) **EVALUATION OF PROPOSAL:** In the City's evaluation of proposals, at minimum: cost, serviceability, financial stability, and all requirements set forth in this document shall be considered as selection and award criteria unless otherwise specified.
- 43) **PREVAILING WAGE:** When applicable, all work for this project, including that of any subcontractor or sub-subcontractor, must meet Davis-Bacon Act requirements and full prevailing wage. Information on Davis-Bacon reporting and requirements, including payroll reporting, can be found at: <https://www.dol.gov/whd/govcontracts/dbra.htm>
- 44) **INSURANCE & BONDS:** The bidder whose proposal is accepted will be required to furnish bonds and evidence of insurance within five days from date of Notice of Award. In case of failure or refusal on the part of the bidder to furnish bonds, if required, within the set period, the amount of deposit may be forfeited to the county and the contract may be awarded to the next lowest responsible bidder. Upon the notification of award and approval of the bond, the deposit will be returned to the proposer. The deposit of persons other than the one to whom and award is made will be returned to the person or persons making the proposal immediately after the contract and bonds have been executed.
- 45) **PROPOSAL SUBMISSION:** Proposals and all information requested of the vendor shall be entered in the appropriate spaces. Failure to do so may disqualify the vendor's offer. An authorized officer or employee of the bidder shall submit the proposal.
- 46) **PRICES:** Prices proposed shall be for new products in current production unless otherwise specified. Where refurbished or discontinued items are offered they must be clearly identified as such. Prices proposed shall be exclusive of any rebates due the City. Any rebates the City may be entitled to should be shown as a separate line item and include expiration date. Corrections and/or modifications received after the bid closing time specified will not be accepted. Unit prices prevail. All prices will be bid F.O.B. DESTINATION, INCLUDE ALL DELIVERY AND ANY ADDITIONAL CHARGES, and remain in effect as specified in the quotation.
- 47) **AWARD:** Unless otherwise stated in the proposal documents, the City cannot guarantee exclusivity of the contract for the proposed products or services. Award of the proposal shall be based upon a combination of factors, including but not limited to, adherence to proposal requirements, references and any other factors that may be in the City's best interest. The City reserves the right to reject any and all bids, and to waive any defect or irregularity in

bids. The City reserves the right to accept and separate items in the bid; and to accept the proposal that in the opinion of the City is to the best advantage and interest of the public we serve. The City also has the right to re-solicit bids if it is deemed to be in the best interest of the City.

The City reserves the right to reject low bids which have major deviations from our specification; to accept a higher quotation which has only minor deviations. By signing the bid, the vendor agrees to accept a split award unless the awarded vendor clearly indicates that it takes exception. The bid will be awarded to that responsible, responsive bidder whose proposal conforms to this solicitation, and will be most advantageous to the City, with regard not only to price, but also to availability of product, location and quality of product considered.

The City reserves the right to award all line items, to make no award or to award on an individual line item basis, whichever is deemed to be in the best interest of the City.

Time of delivery may be a consideration in the award.

48) **ETHICS IN PURCHASING:** Bidders and proposers are required to comply with Flint City Ordinance 3865 in its entirety. It is incumbent upon and the responsibility of the bidder to become familiar with and comply with the Purchasing ordinances as outlined in 3865 covering chapter 18 of the Flint City Ordinances. Bidder/Proposer acknowledges in accordance with Flint City Ordinance Section 18-21.19 Ethics in Purchasing, any and all communication about the bid selection process should be directed to those City employees delegated with the authority with respect to all purchases of goods and services.

Bidder/Proposer acknowledges and agrees that while a procurement is pending, bidders and proposers shall not communicate about the solicitation with any City employee, agent, or elected official, other than the purchasing director or other City personnel identify in the solicitation. This means that bidder and proposer are prohibited from communicating orally or by written communications, including but not limited to voicemail messages, social media, email, in person, among any other form of communication while the award is pending, to the aforementioned, with the exception to those employees designated by the City. If you are unclear about the process, it is your duty and obligation to contact the designated employee(s) for clarification.

Violations of the ethics provision of the ordinance, without regard to if the violation rises to the level of a criminal violation, may subject the bidder or proposer to debarment.

49) **BID PROTESTS:** If Bidder/Proposal believe that they are aggrieved in connection with the solicitation or award of the purchase order or contract, they may protest the action to the City as outlined in Flint City Charter Section 18-21.15.

PROPOSAL NO. 22000527
PHASE VII FAST START SERVICE LINE REPLACEMENT: EXCAVATION AND RESTORATION (SLE/SLR)

THE FOLLOWING PAGES MUST BE COMPLETED AND INCLUDED WITH SUBMITTAL IN THE FOLLOWING ORDER.

Purchasing Checklist:

- Cover Sheet
- Exhibit A - Complete Proposal Submittal with detailed Summary of Pricing
- Exhibit B –Qualifications and Licenses Requirements
- Exhibit C – Disclosure of Supplier Responsibility Statement
- Exhibit D - List of References
- Exhibit E - Certificate of Insurance
- Exhibit F – Non-Bidder’s Response
- City of Flint, Michigan Affidavit

❖ EXHIBIT A - SUBMITTAL WITH DETAILED SUMMARY OF PRICING

PROPOSAL NO. 22000527
PHASE VII FAST START SERVICE LINE REPLACEMENT: EXCAVATION AND RESTORATION (SLE/SLR)

ARTICLE 5 -BASIS OF BID

Bidder will complete the Work in accordance with the Contract Documents for the unit prices identified in the table below.

- A. Unit Prices shall be computed in accordance with 13.03 of the General Conditions.
- B. The intent of this Bid is to establish unit prices to complete restoration of areas disturbed during service line replacements (SLR), and associated work. The complete scope of restoration work is dependent on the areas disturbed during the excavation investigation process and service line replacement work. Not all of these sites may require restoration work. Restoration and related work will be conducted at properties where exploration/excavation investigations and service line replacements disturb pre-construction conditions to a level that warrants specific restoration to occur.
- C. Restoration quantities may be increased or decreased as schedule and available funding dictate.
- D. The Owner reserves the right to award additional assignments once a Contract's original scope of work is completed and accepted by the Owner.
- E. The Contractor shall not be entitled to renegotiate any unit pricing based upon the quantity of any work.
- F. Bidder acknowledges that quantities of work are not guaranteed. Final payment for all unit price Bid items will be based on actual quantities of work completed as described in the Contract Documents.
- G. The City of Flint reserves the right to reject any or all Bids, or to accept or reject any Bid in part, and to waive any minor informality or irregularity in the Bid received if it is determined by the City of Flint, or their designee, that the best interest of the City will be served by doing so. No Bid will be considered from any person, firm or corporation in arrears or in default to the City on any contract, debt, taxes, or other obligation, or if the Bidder is debarred by the City of Flint from consideration for a Contract award.
- H. The City is anticipating awarding one contract for this work. The pay items and unit prices noted below are what is anticipated for 2,500 properties.

ITEM	DESCRIPTION	UNITS	UNIT PRICE	TOTAL PRICE
COMPANY NAME:				
	Approximately 2,500 Addresses		Total Price	
			=	
Restoration				
R.1	Asphalt Roadway, Major	4,000 SF	\$	\$

	Streets			
R.2	Asphalt Roadway, Local Streets	22,000 SF	\$	\$
R.3	Concrete Roadway, State Highways	4,000 SF	\$	\$
R. 4	Concrete Roadway, Major Roads	4,000 SF	\$	\$
R. 5	Concrete Roadway, Local Roads	4,000 SF	\$	\$
R. 6	Asphalt Driveway	4,000 SF	\$	\$
R.7	Concrete Driveway	4,000 SF	\$	\$
R.8	Curb and Gutter	800 LF	\$	\$
R.9	Concrete Sidewalk	20,000 SF	\$	\$
R.10	Greenbelt and Lawn Area	400,000 SF	\$	\$
R.11	Remove Cracked or Broken Sidewalks and Driveways	50,400 SF	\$	\$
EXP.1	Exploration /Excavation	2500 EA	\$	\$
SLR 1	¾" Partial Replacement, Public Side	400 EA	\$	\$
SLR 2	¾" Partial Replacement, Private Side	60 EA	\$	\$
SLR 3	¾" Full Replacement	700 EA	\$	\$
SLR 4	1" Partial Replacement, Public Side	15 EA	\$	\$
SLR 5	1" Partial Replacement, Private Side	5 EA	\$	\$
SLR 6	1" Full Replacement	15 EA	\$	\$
SLR 7	1-1/2" Partial Replacement, Public Side	5 EA	\$	\$
SLR 8	1-1/2" Partial Replacement, Private Side	5 EA	\$	\$
SLR 9	1-1/2" Full Replacement	5EA	\$	\$
			\$	\$
SLR 10	2" Partial Replacement, Public Side	5 EA	\$	\$
SLR 11	2" Partial Replacement, Private Side	5 EA	\$	\$
SLR 12	2" Full Replacement	5EA	\$	\$
SLR 13	Additional Copper Service Line, >60 LF	7,000 LF	\$	\$
SLR14	SLR, SHPO Zone w/Archeologist	10 EA	\$	\$
M 1	Cut & Cap, Abandoned House Service	10 EA	\$	\$
M 3	Sanitary Lateral Repair	5 EA	\$	\$
M 4	LSM, Unstable Trench Bottom	20 CY	\$	\$

M 5	Traffic Control, Flagmen/Police Assisted	200 HR	\$	\$
M 6	Tree Removal, <=24" Diameter	5 EA	\$	\$
M7	Tree Removal, < 24" Diameter	5 EA	\$	\$
TOTAL PRICE (IN FIGURES)				

GRAND TOTAL in Words:

I. As the cost of the project Bids allow, the City may award multiple contracts to complete the work. The scope of the restoration work will be divided between each executed contract. The City understands that not every Bidder may have the labor, equipment, or bonding capacity to execute the entire scope of the intended contract. The City will require each Bidder to provide the following information with regard to their ability to complete the work. This information should be provided on Company letterhead and signed by a company representative qualified to sign and execute their Bid and subsequent Contract.

J. Is your firm willing and capable of substantially completing work at all potential 2,500 restoration sites by the anticipated target December 2023 or until contract funding is exhausted? YES NO (circle one).

K. This Contract will be awarded to the lowest responsive, responsible. Every effort will be given to assign the work based upon age of unfinished excavation, type of restoration, geographic location and number or sites. Because there will be carry-over excavations from prior SLR phases, addresses will be assigned from excavations done in prior SLR phases. There will be a focus to distribute work regionally to each contractor to try and maximize efficiency. The Bidder(s) to whom an award is made will be notified at the earliest possible date. Tentative acceptance of the Bid, intent to recommend award of a contract, and actual award of the contract will be provided by written notice sent to the Bidder at the address designated in the bid if a separate agreement is required to be executed. After a final award of the agreement by the City of Flint, the Bidder must execute and perform said agreement. If for by reasons of refusal by the Bidder a contract is not executed with the selected Bidder after notice of recommendation for award, then the City may recommend the next lowest responsive and responsible Bidder for that work area.

ARTICLE 6 - TIME OF COMPLETION

6.1 Bidder agrees that the Work is anticipated to be substantially complete on or before December 2023 and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before December 2023 or until funding is exhausted in contract(s) whichever comes first.

6.2 Bidder accepts the provisions of the Agreement as to liquidated damages should final completion exceed anticipated completion date based upon mutual acceptance of the contract parties.

6.3 All restoration work shall be done under a one-year warranty for each site restored based upon date of last completed repair item.

Company Name:

Address:

Telephone Number:

Fax Number:

Email:

- 1. Failure to use this bid form shall result in bid disqualification.
- 2. Failure to bid on all items shall result in an "incomplete bid" determination.
- 3. List value-added considerations on a separate sheet of paper.
- 4. All bid pricing to include shipping and freight charges.

THIS PAGE MUST BE COMPLETED AND INCLUDED WITH THE BID

The undersigned hereby certifies, on behalf of the respondent named in this Certification (the "Respondent"), that the information provided in this offer submitted to the City of Flint, Department of Purchase and Supplies is accurate and complete, and that I am duly authorized to submit same. I hereby certify that the Respondent has reviewed all documents and requirements included in this offer and accept its terms and conditions.

Terms: _____ Fed. ID #: _____

Company (Respondent): _____

Address: _____

City, State & Zip Code: _____

Phone / Fax Number: _____ FAX: _____

Email: _____

Print Name and Title: _____

(Authorized Representative)

Signed: _____

(Authorized Representative)

❖ EXHIBIT B - QUALIFICATIONS AND LICENSES REQUIREMENTS

Please give a synopsis of your qualifications and experience with this service:

Please list Licenses:

How long have you been in business?

Have you done business with the City of Flint?

If yes, please state the project name.

❖ EXHIBIT C – DISCLOSURE OF SUPPLIER RESPONSIBILITY STATEMENT

1. List any convictions of any person, subsidiary, or affiliate of the company, arising out of obtaining, or attempting to obtain a public or private contract, or subcontract, or in the performance of such contract or subcontract.

2. List any convictions of any person, subsidiary, or affiliate of this company for offenses such as embezzlement, theft, fraudulent schemes, etc. or any other offense indicating a lack of business integrity or business honesty which affect the responsibility of the contractor.

3. List any convictions or civil judgments under state or federal antitrust statutes.

4. List any violations of contract provisions such as knowingly (without good cause) to perform, or unsatisfactory performance, in accordance with the specifications of a contract.

5. List any prior suspensions or debarments by any government agency.

6. List any contracts not completed on time.

7. List any documented violations of federal or state labor laws, regulations or standards, or occupational safety and health rules.

❖ EXHIBIT D – LIST OF REFERENCES: (3) SIMILAR SCOPE OF WORK FROM THE LAST 5 YEARS

Providing the following contact information enables the City of Flint to contact those accounts as references.

Reference #1:

Company/Municipality: _____

Contact Person: _____ Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Email: _____

Type of Project: _____

Project Timeline (Dates): _____ Budget: _____

Reference #2:

Company/Municipality: _____

Contact Person: _____ Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Email: _____

Type of Project: _____

Project Timeline (Dates): _____ Budget: _____

❖ EXHIBIT D – LIST OF REFERENCES: (3) SIMILAR SCOPE OF WORK FROM THE LAST 5 YEARS (CONTINUES)

Reference #3:

Company/Municipality: _____

Contact Person: _____ Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Email: _____

Type of Project: _____

Project Timeline (Dates): _____ Budget: _____

❖ EXHIBIT E – CERTIFICATE OF INSURANCE**INSURANCE REQUIREMENTS**

The Contractor shall notify all insurance agents and companies retained by the Contractor that these insurance requirements shall be included in any Agreement between the Contractor and the City of Flint.

The Contractor shall purchase and maintain, at its sole expense and as long as it is providing services to the City, the following insurance coverage:

Commercial General Liability - Occurrence form, including coverage for bodily injury, personal injury, property damage (broad form), premises/operations, blanket contractual, and products/completed operations. Coverage shall be endorsed to include the City as an additional insured for work performed by the Contractor in accordance with the Agreement.

Minimum Limits:

- \$1,000,000 per occurrence/\$2,000,000 general aggregate
- \$2,000,000 aggregate for products and completed operations
- \$1,000,000 personal and advertising injury

Automobile - Michigan "no-fault" coverage, and residual automobile liability, comprehensive form, covering owned, hired, and non-owned automobiles. Coverage shall be endorsed to include the City as an additional insured for work performed by the Contractor in accordance with the Agreement.

Minimum Limits:

- No-fault coverages - statutory
- \$500,000 per person/\$1,000,000 per accident - bodily injury
- \$500,000 per occurrence - property damage
- A combined single limit of \$1,000,000 per occurrence

Workers' Compensation and Employer's Liability- Statutory coverage or proof acceptable to the City of approval as a self-insurer by the State of Michigan.

❖ EXHIBIT E – CERTIFICATE OF INSURANCE (CONTINUES)

Minimum Limits:

- Workers' Compensation - statutory
- Employer's Liability - \$100,000 each accident/\$100,000 disease - each employee
- \$500,000 disease - policy limit

Professional Liability – Covering acts, errors or omissions of a professional nature committed or alleged to have been committed by the Contractor or any of its subcontractors. Coverage shall be effective upon the date of the Agreement and shall remain effective for a period of three (3) years after the date of final payment thereunder. Such coverage shall be endorsed to include any subcontractors hired by the City.

Minimum Limits:

- \$1,000,000 per occurrence, \$1,000,000 annual aggregate

Insurance coverage shall cover all claims against the City of Flint, its officials and employees, arising out of the work performed by the Contractor or any subcontractors under the Agreement. Should any work be subcontracted, it shall be the responsibility of the Contractor to maintain Independent Contractor's Protective Liability Insurance with limits equal to those specified above for Commercial General Liability Insurance. In addition, the Contractor shall provide proof of Workers' Compensation Insurance for all subcontractors in compliance with the required statutory limits of the State of Michigan.

Said policies of insurance shall be with companies licensed to do business in the State of Michigan and in a form satisfactory to the City. All insurance companies must maintain a rating of B+, VIII or better from AM. Best Company. Certificates of insurance with a thirty-(30) day cancellation clause shall be filed with and approved by the City at least five (5) days in advance of commencing work under the Agreement. Cancellation, material restriction, non-renewal or lapse of any of the required policies shall be grounds for immediate termination of the Agreement by the City.

The City reserves the right to request a complete certified copy of the policies for the above coverage's.

Any reduction or exhaustion in the limits of required insurance coverage shall not be deemed to limit the indemnification afforded in accordance with the Agreement or any amendments thereto.

Depending on the subject matter of the transaction, the City may require other insurance coverage in addition to the coverage's contained herein.

THE BID NUMBER IS TO APPEAR ON ALL INSURANCE CERTIFICATES

❖ EXHIBIT F – NON-BIDDER’S RESPONSE

VENDOR’S NAME: _____

NON-BIDDER’S RESPONSE

For the purpose of facilitating your firm’s response to our invitation to bid, the City of Flint is interested in ascertaining reasons for prospective bidder’s failure to respond to “Invitations to Bid”. If your firm is not responding to this bid, please indicate the reason(s) by checking any appropriate item(s) below and return this form to the above address.

We are *not* responding to this “Invitation to Bid” for the following reason(s):

_____ Items or materials requested not manufactured by us or not available to our company.

_____ Our items and/or materials do not meet specifications.

_____ Specifications not clearly understood or applicable (too vague, too rigid, etc.).

_____ Quantities too Small.

_____ Insufficient time allowed for preparation of bid.

_____ Incorrect address used. Our correct mailing address is:

_____ Our branch / division handles this type of bid. We have forwarded this bid on to them but for the future the correct name and mailing address is: _____

_____ **OTHER:** _____

Thank you for your participation in this bid.

AFFIDAVIT FOR INDIVIDUAL

STATE OF _____

S.S.

COUNTY OF _____

_____ being duly sworn, deposes and says that they are the person making the above bid; and that said bid is genuine and not sham or collusive, and is not made in the interest of or on behalf of any person not therein named, and that they have not directly or indirectly induced or solicited any bidder to put in a sham bid; that they have not directly or indirectly induced or solicited any other person or corporation to refrain from bidding, and that they have not in any manner sought by collusion to secure themselves any advantage over other bidders.

Subscribed and sworn to before me at _____, in said County and State,

this _____ day of _____, A.D. 20____,

*Notary Public, _____ County, _____

My Commission expires _____, 20____

FOR CORPORATION

STATE OF _____

S.S.

COUNTY OF _____

_____ being duly sworn, deposes and says that she/he/they
is _____ of _____

(Official Title)

(Name of Corporation)

a corporation duly organized and doing business under the laws of the State of _____
the corporation making the within and foregoing bid; that they executed said bid in behalf of said corporation by
authority of its Board of Directors; that said bid is genuine and not sham or collusive and is not made in the
interests of or on behalf of any person not herein named, and that they have not and said bidder has not directly
or indirectly induced or solicited any other person or corporation to refrain from bidding; that they have not and
said bidder has not in any manner sought by collusion to secure to themselves or to said corporation an advantage
over other bidders.

Subscribed and sworn to before me at _____, in said County and State,

this _____ day of _____, A.D. 20_____,

*Notary Public, _____ County, _____

My Commission expires _____, 20_____

FOR PARTNERSHIP

STATE OF _____

S.S.

COUNTY OF _____

_____ being duly sworn, deposes and says that they are a member of the firm of _____, a co-partnership, making the above bid; that they are duly authorized to make said bid on behalf of said co-partnership; that said bid is genuine and not sham or collusive, and is not made in the interest of or on behalf of any person not therein named, and that they have and said bidder has not directly or indirectly induced or solicited any other person or corporation to refrain from bidding, and that they have not and said bidder has not in any manner sought by collusion to secure to themselves or to said bidder any advantage over other bidders.

Subscribed and sworn to before me at _____, in said County and State,

this _____ day of _____, A.D. 20_____,

*Notary Public, _____ County, _____

My Commission expires _____, 20_____

FOR AGENT

STATE OF _____

S.S.

COUNTY OF _____

_____ being duly sworn, deposes and says that they executed the within and foregoing bid in behalf of _____, the bidder therein named, they having been theretofore lawfully authorized, as the agent of said bidder, so to do; that said bid is genuine and not sham or collusive and not made in the interests of or on behalf of any person not therein named, and that they have not and said bidder has not directly or indirectly induced or solicited any bidder to put in a sham bid; that they have not and said bidder has not directly or indirectly induced or solicited any other person or corporation to refrain from bidding, and that they have not and said bidder has not in any manner sought by collusion to secure to themselves or to said bidder any advantage over other bidders.

Subscribed and sworn to before me at _____, in said County and State, this _____ day of _____, A.D. 20____,

*Notary Public, _____ County, _____

My Commission expires _____, 20____

NOTE: If executed outside of the State of Michigan, certificate by the Clerk of the Court of Record, authenticating the Notary's Signature and authority should be attached.



**PHASE VII FAST START SERVICE LINE REPLACEMENT:
EXCAVATION AND RESTORATION (SLE/SLR)**

SUBMITTAL FORM FOR QUESTIONS
Due Friday, June 17, 2022 by 10:00 A.M.

- 1.
- 2.
- 3.
- 4.
- 5.

Company Name	
Representative Name	
Address:	
Telephone Number	
Email Address	

(Representative Signature)

Date

Please email this form to the attention of Lauren Rowley, Purchasing Manager
 Email: lrowley@cityofflint.com

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
29. *Notice to Proceed*—A written notice 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.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor’s plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *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.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *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.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *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 of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. 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 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;
 - 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.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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 the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract 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 Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.

- 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 permanent improvements are to be made 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.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. 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 Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, 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.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is 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; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, 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 Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *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 maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) 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) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. *Contractor's Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

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

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *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.

7.11 *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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. 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, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. 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.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 *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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must 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 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall 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 7.16.C.
 3. 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. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

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.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 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 is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, 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.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
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;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will 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.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
 - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
 - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *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.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
 - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.07. 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.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in 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;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of 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, 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.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will 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 communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. 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.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 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*: Contractor agrees that:
1. 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
 2. 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 for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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 will 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.

14.07 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 defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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.
 - 2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- 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 preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- 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. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.04 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, 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. Contractor shall pay all 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. 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.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.

- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 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; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 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 16.03.
- 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, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is 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.

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

SECTION 00 73 02

SUPPLEMENTARY CONDITIONS

Supplementary Conditions

These Supplementary Conditions amend or supplement EJCDC® C 700 Standard General Conditions of the Construction Contract, (2018). The General Conditions remain in full force and effect except as amended.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, “Paragraph SC 4.05.”

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

2.06 *Electronic Transmittals*

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. Requests by Contractor for Electronic Documents in Other Formats

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor (“Request”) in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner’s response to the Request, and to the following conditions to which Contractor agrees:
 - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer’s purposes solely, and is being provided to Contractor on an “AS IS” basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor’s application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.

- b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor’s sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
- c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor’s use, adaptation, or distribution of any Electronic Documents provided under the Request.
- d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless to Contractor’s subcontractors. Contractor warrants that subsequent use by Contractor’s subcontractors complies with all terms of the Contract Documents and Owner’s response to Request.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

SC-3.01 Delete Paragraph 3.01.C in its entirety.

SC-3.03 Reporting and Resolving Discrepancies

SC-3.03.B Add the following paragraph immediately after Paragraph 3.03.B.1.b

- c. In the event of a conflict between two or more sections of the Contract Documents prepared by the Engineer, the contract requirements will be defined by the provisions of these sections in the following order of precedence:
 - Addenda (in descending order)
 - Drawings
 - Specifications.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 Subsurface and Physical Conditions

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which the Contractor may rely:

Report Title	Date of Report	Technical Data
N/A	N/A	None

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or

adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A	N/A	None

SC-5.06 *Hazardous Environmental Conditions at Site*

SC-5.06 Add the following new paragraphs immediately after 5.06.A.3:

- The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A	N/A	None

- The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A	N/A	None

ARTICLE 6—BONDS AND INSURANCE

SC-6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

- Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
- Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

SC-6.02 *Insurance—General Provisions*

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

- Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.

SC-6.03 *Contractor’s Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess,

pollution liability, and/or unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **The Contractor's liability policy and the State of Michigan, Michigan Transportation Commission, Department of Transportation, and governmental bodies performing permit activities under a maintenance contract, and all officers, agents and employees of all the above, for claims arising out of, under, or by reason of operations covered by the permit issued to the permittee.**

- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$100,000
Bodily injury by disease—aggregate	\$500,000
Employer's Liability	
Each accident	\$100,000
Each employee	\$100,000
Policy limit	\$100,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$1,000,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and
 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
 6. Any limitation or exclusion based on the nature of Contractor's work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance 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. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$500,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$500,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$1,000,000
General Aggregate	\$1,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer’s liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy’s policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$1,000,000 after accounting for partial attribution of its limits to underlying policies, as allowed above.

- M. *Contractor’s Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of

pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	\$2,000,000
General Aggregate	\$4,000,000

N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	\$2,000,000
Annual Aggregate	\$4,000,000

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A in its entirety.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

SC-7.03 *Labor; Working Hours*

SC-7.03 Delete Paragraph 7.03.C in its entirety, and insert the following:

- A. As described in the City of Flint's front end documents.

ARTICLE 8—OTHER WORK AT THE SITE

No suggested Supplementary Conditions in this Article.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

No suggested Supplementary Conditions in this Article.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 *Resident Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:

1. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
4. Safety Compliance: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
5. Liaison
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
6. Review of Work; Defective Work
 - a. Conduct on-Site observations of the work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
7. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
8. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
9. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

- c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
10. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
11. Payment Requests: Review Applications for Payment with Contractor.
12. Records:
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
13. Reports:
 - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
14. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
15. Completion
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.

- d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including “or-equal” items).
2. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
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 security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11 – CHANGES TO THE CONTRACT

No suggested Supplementary Conditions in this Article.

ARTICLE 12 – CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 Cost of the Work

SC 13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of “*Rental Rate Blue Book for Construction Equipment, Volumes 1, 2, and 3*” by Equipment Watch, Inc.

SC 13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, “small tools and hand tools” means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

SC-13.03 Unit Price Work

SC 13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to 10 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14 –TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01 Progress Payments

SC 15.01.D Delete Section 15.01.D and replace with the following:

- D. The amount recommended for payment to the Contractor is due 30 days after approval by the Owner, except where the Owner is receiving funds from a federal or state funding program. Where funds for payment are provided by a federal or state funding program, the recommended payment to the Contractor is due 30 days after approval by the Owner or ten days following receipt of funds from the federal or state funding program, whichever is later. Where only a portion of the funding is provided by federal or state funding programs, the Owner is not required to make a partial payment to the Contractor in advance of receipt of funds from the federal or state program.

SC-15.01 Add the following new Paragraph 15.01.E:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

SC-15.03 Substantial Completion

SC 15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.02 Attorneys' Fees

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

SC-17.02 Attorneys' Fees:

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18 – MISCELLANEOUS

No suggested Supplementary Conditions in this Article.

END OF SECTION

SECTION 01 11 00
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION:

A. Engineer / Construction Manager (CM): City of Flint or their designee

1. Engineer / Construction Manager (Engineer) has been engaged for this Project to serve as an advisor to Owner and to provide assistance in administering the Contract for construction between Owner and each Contractor, according to a separate contract between Owner and Engineer.

1.3 WORK COVERED BY CONTRACT DOCUMENTS:

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. After initial attempts contact by the Engineer/Construction Manager/CM, Contractor may be required to contact homeowners and/or residents to schedule and secure permission to conduct excavations and replacements. Contact(s) attempted by contractor(s), and results shall be documented and reported to the CM/Engineer on a timely basis.
2. Exploratory excavations, using traditional underground excavation methods consisted with ANSI / AWWA (American National Standards Institute /

American Water Works Association) C810-17, Sec. 4.1.1.5 (see Appendix D), to identify the composition of service lines through locating at 5 ft. either side of the curb box.

3. Replacement of identified lead and galvanized residential water service lines with new copper piping. Work will be classified as follows:
 - a. Complete Replacement: Replacement of the entire water service line including, as necessary, corporation stop, curb stop and curb box from the public water main to the residential water meter.
 - b. Partial Replacement, Public Side: Replacement of the water service line including, as necessary, corporation stop, curb stop and curb box from the public water main to the curb box.
 - c. Partial Replacement, Private Side: Replacement of the water service line including, as necessary, curb stop and curb box from the curb box to the residential water meter.
4. Replacement of water mains, valves and fittings as directed.
5. Temporary site restoration.
6. Miscellaneous and ancillary work such as:
 - a. Sanitary lateral inspection and repair, if necessary.
 - b. Cut and cap of service lines for abandoned houses with active accounts.
 - c. Tree removal.
7. Final restoration activities.
8. Preparation, including grading, compaction, and placement of new subgrade material (as needed) prior to restoration.
9. Saw-cutting of existing asphalt edges as necessary to provide a clean, square, vertical surface prior to the placement of new bituminous material.
10. Restoration of greenway and lawn areas, sidewalks, driveways, curbing, and roadways disrupted, disturbed, or left unrestored during the completion of Phase VI exploratory excavations/investigations, Phase VI service line replacement work, and other associated work.
11. Removal and disposal of excavated spoils material at an approved location. Contractor is responsible for the disposal of any lead or other contaminated material at an approved disposal facility.
12. Traffic controls and site safety.
13. Site cleanup.

B. Type of Contract:

1. Project will likely be constructed under multiple coordinated and concurrent contracts.

1.4 PHASED CONSTRUCTION:

- A. The Work may be conducted across multiple contracts. Contractors will be assigned a specific work area and an allotted number of sites to complete restoration work. Additional restoration work will be provided as service line replacement (SLR) and exploratory excavation/investigation work is completed. These additional assignments will be made according to the progress of the SLR work, as well as the respective restoration Contractor's progress in completing assigned restoration work, and quality and acceptance of the work.
- B. Before commencing Work of each assigned area, submit an updated copy of Contractor's construction schedule showing the sequence, commencement and completion dates.

1.5 WORK UNDER SEPARATE CONTRACTS:

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent and Preceding Work: Owner has awarded separate contract(s) for the following construction work in the City. This construction may be occurring at or near individual restoration sites to be completed under this Contract. Those operations are scheduled to be underway, but may not be substantially complete before work under this Contract begins. Those operations may be conducted simultaneously with work under this Contract. Note that other construction projects by the City, as well as other utilities or agencies may also be occurring at the same time.
 1. Excavation explorations to determine the material of construction for residential water service lines.
 2. Replacement of lead or galvanized residential water service lines.
 3. Restoration of areas previously disturbed by hydrovac and service line replacement work.

1.6 ACCESS TO SITE:

- A. General: Contractor may have limited use of Project sites for construction operations as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Limits: Confine restoration work to disturbed areas or as directed by the Engineer.

2. Driveways, Walkways and Entrances: Keep driveways, sidewalks and entrances serving premises clear and available to property owner and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 COORDINATION WITH OCCUPANTS:

- A. Full Owner Occupancy: Resident will occupy site and existing building during entire construction period. Cooperate with resident during construction operations to minimize conflicts and facilitate usage. Perform the Work so as not to interfere with residents' day-to-day operations. Maintain existing exits unless otherwise indicated.
 1. Maintain access to existing walkways, driveways, and other adjacent occupied or used facilities. Do not close or obstruct walkways, driveways, or other occupied or used facilities without written permission from property owner and approval of authorities having jurisdiction.
 2. Engineer will notify property owner in advance of activities that will affect resident's access to the house.

1.8 WORK RESTRICTIONS:

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to normal business working hours of 7:00 AM to 5:00 PM., Monday through Friday, unless otherwise indicated or authorized.
 1. Weekend, Holiday, and Early Morning Hours: Weekend, holiday and early morning work shall not be conducted without prior approval from the Owner and Engineer.
 2. Hours for Utility Shutdowns: Coordinate and obtain approval from the owning Utility before conducting any utility shutdowns.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
 2. Obtain written permission from the respective utility owner before proceeding

with utility interruptions.

- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption with Owner.
1. Notify Engineer at least two days in advance of proposed disruptive operations.
 2. Obtain Engineer's written permission before conducting disruptive operations.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 14 14

CONTROL OF WORK

PART 1 - GENERAL

1.1 LABOR AND EQUIPMENT AND HOURS OF CONSTRUCTION:

- A. Furnish labor and equipment which will be efficient, appropriate, and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the Contract Time. If at any time such work appears to the Engineer to be inefficient, inappropriate, or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, the Engineer may order the Contractor to increase the efficiency, change the character, or increase the labor and equipment and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.
- B. Normal construction activity shall take place only between the hours of 7:00 AM to 5:00 PM, excluding Saturdays, Sundays, and legal holidays. Work outside the above time periods will be permitted only on an emergency basis and only with the written approval of the Owner.

1.2 OCCUPYING PRIVATE LAND:

- A. The Contractor shall not (except after written consent from the proper parties) enter or occupy with personnel, tools, materials, or equipment any land outside the rights of way or property of the Owner. A copy of the written consent shall be given to the Engineer.

1.3 PIPE LOCATIONS

- A. Exterior Pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.
- B. Small interior piping is indicated diagrammatically on the Drawings, and the exact location is to be determined in the field. Piping shall be arranged in a neat, compact, and workmanlike manner, with a minimum of crossing and interlacing, so as not to interfere with equipment or access ways, and, in general, without diagonal runs. New service connections between the curb stop and existing water main shall be made perpendicular to the existing main and will run in a straight path, without bends, to the house.

1.4 OPEN EXCAVATIONS:

- A. All open excavations shall be adequately safeguarded by providing temporary

barricades, fencing, caution signs, lights, and other means to prevent accidents to persons and damage to property, and in accordance with applicable occupational health and safety regulations. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of the open excavation, prohibiting stacking excavated material in the street, and requiring that the excavation shall not remain open overnight.

- B. The Contractor shall take precautions to prevent injury to the public due to open excavations. All excavations, excavated material, equipment, or other obstacles which could be dangerous to the public shall be well lighted at night.

1.5 INTERFERENCE WITH AND PROTECTION OF STREETS:

- A. The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, the Contractor shall make such repairs or provide barricading in such a manner acceptable to the proper authorities.
- B. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefor.
- C. The Contractor shall, at least 24 hours in advance on local streets and 72 hours in advance on major streets, notify the City of Flint Traffic Engineering Division in writing, with a copy to the Engineer, if the closure of a street or road is necessary. The Contractor shall provide the City of Flint Traffic Engineering Division with a traffic control plan. Once the traffic control plan is approved by the City of Flint Traffic Engineering Division the contractor will be responsible for the setting up and maintaining of traffic control barricades, arrow boards, signage, adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

1.6 TRAFFIC CONTROL:

- A. For control of moderate traffic, the Contractor shall provide an adequate number of flagmen and other traffic controls as required by the traffic control permit.
- B. Whenever and wherever, in the opinion of the Engineer or permitting agency, traffic is sufficiently congested or public safety is endangered, the Contractor, as required, shall furnish flagmen and / or uniformed police officers to direct traffic and to keep traffic off the roadway area affected by their construction operations.
- C. Payment for traffic controls shall be made in accordance with Section 01 29 01.
- D. The employment or presence of traffic flagmen, special officers, or police shall in no way relieve the Contractor of any responsibility or liability which is theirs under the terms of the contract.

1.7 CARE AND PROTECTION OF PROPERTY:

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Engineer.

1.8 INTERFERENCE WITH EXISTING WORKS:

- A. The Contractor shall at all times conduct his operations so as to interfere as little as possible with existing water distribution system. The Contractor shall develop a program, in cooperation with the Engineer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Before starting work which will interfere with the operations of existing facilities, the Contractors shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.
- B. The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.
- C. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to the need for continuous flow of water and sewage.

1.9 MAINTAINING FLOWS:

- A. It is essential that the number and duration of interruptions to residential water service be minimized as much as possible during the execution of the work. Contractor will coordinate with the Engineer and local residents to ensure that operations are carried out as efficiently as possible.

1.10 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES:

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric,

fiberoptic and telephone cables. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.

- B. The Contractor shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit prices bid in the Bid Form.
- D. If, in the opinion of the Engineer, permanent relocation of a utility is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid at the Contract unit prices, if applicable, or as extra work under Article 11 of the Supplementary Conditions. If relocation of a privately owned utility is required, the Engineer will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Engineer and Utility, and shall have no claim for delay due to such relocation. The Contractor shall notify all utility companies in writing at least 72 hours (excluding Saturdays, Sundays, and Legal holidays) before excavating in any public way. Contractor shall also notify Michigan 811 at least 72 working hours prior to start of work.
- E. The Contractor shall coordinate the removal and replacement of traffic loops and signals, if required for the performance of the work, at no additional cost to the Owner.

1.11 CLEANUP AND DISPOSAL OF EXCESS MATERIAL:

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and as neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the day, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.
- B. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable Federal, State, and local laws, and regulations concerning waste material disposal, as well as the specific requirements stated in this Section and elsewhere in the Specifications.

- C. The Contractor is advised that the disposal of excess excavated material in wetlands, stream corridors, and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him, will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. Therefore, the Contractor will be required to remove the fill at his own expense and restore the area impacted.

- D. The Contractor shall provide a disposal plan that identifies the location where the Contractor intends to dispose of all spoils materials. The Contractor will be responsible for all labor, equipment, permitting and fees associated with the removal and acceptable disposal of construction debris and spoil materials.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 29 01

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION:

A. Summary:

1. Section includes administrative and procedural requirements for unit prices.

1.2 DEFINITIONS:

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

1.3 MEASUREMENT AND PAYMENT – GENERAL:

- A. The following paragraphs describe the measurement of and payment for the work to be done under the items listed in the Bid Form.
- B. Each unit price stated in the Bid shall constitute full compensation as herein specified for each item of work completed in accordance with the specifications.
- C. In all items involving excavation, the price shall be based on doing the entire excavation in earth. Where rock is excavated, the price therefor, shall be in addition to the cost of excavating earth, and no deduction will be made in the amount for earth excavation.
- D. Unit prices shall include:
 1. Administrative tasks and costs, including but not limited to attendance at meetings; project scheduling; project and construction management; application, approval and renewal, including associated fees, of required permits; ancillary costs such as bonding and insurances; management of subcontractors; project coordination; notification of Miss Dig; and documentation of work and site conditions.
 2. Removal and disposal of temporary restoration materials placed during the completion of hydrovac investigations and service line replacement work.
 3. Traffic controls and associated administrative tasks, including permitting; associated fees; and maintenance and renewal of permitting. This also includes all materials such as cones, barricades, and barrels; labor, including flagmen and if necessary, uniformed police officers; and equipment such as arrowboards, vehicles, and truck mounted attenuators to safely conduct traffic control operations

as required in the areas of the Work. Stand-alone materials and equipment such as cones, barricades, barrels, arrowboards, vehicles, and truck mounted attenuators are considered “static traffic controls”.

Contractor is responsible to obtain, pay for, and maintain traffic control permits as dictated by local, state and federal agencies. All permitting efforts and fees related to traffic controls is considered incidental and are to be included in the unit price for the work.

All traffic controls, including the use of flagmen and uniformed police officers, and associated tasks are to be included in each Bid Item.

4. Project safety controls and measures.
 5. Removal and disposal of excavation spoils and construction debris at an approved facility, including associated fees and meeting disposal requirements established by the disposal facility.
 6. Provision of water including obtaining and maintaining written authorization to withdraw water and payment of all associated costs and fees; transport of water to work sites; provision or rental of hydrant meters; and all other costs and efforts to obtain water for use at work sites.
 7. Coordination of work with Owner, Engineer and field representatives; other contractors; and local property owners.
 8. Protection of existing site features; residential service lines; and other utilities.
 9. Travel and mobilization of equipment, tools and labor between individual property work sites.
 10. Recording and documentation of work and site conditions.
- E. Any costs for deployment of services shall be included in full compensation for all labor, material and equipment necessary for all preparatory work and operations. Contractor will not be paid again if the Contractor moves off site and has to return including the movement of personnel, equipment, supplies and incidentals to and from various project sites; supply and construction of temporary facilities, Contractor’s field office, all items specified in Section 01 50 00 not identified in another Bid Item, other items necessary to undertake the work of the project not identified in another Bid Item; utility location mark-outs; daily project clean-up and refuse disposal; and additional

preconstruction costs, including permits, insurance and bonds, exclusive of bidding costs, which are necessary direct costs to the project and are of a general nature not attributable to other Bid Items.

- 2 The Contractor may request payment of up to 50% of this Bid Item on the first invoice; 20% over the remaining invoices, excluding the final invoice; and 30% on the final invoice. The total payment amount for this Bid Item will only be made for the lump sum price bid. No adjustment to the lump sum price of this Bid Item will be made for adjustments in the quantity of work performed and corresponding fees paid for the work.
- 1.5 BID ITEM R.1 – ASPHALT ROADWAY, MAJOR ROADS AND BID ITEM R.2 – ASPHALT ROADWAY, LOCAL ROADS:
- A. The quantity to be paid under this Bid Item shall be equal to the actual number of square feet of bituminous or bituminous over concrete road restoration completed and accepted by Engineer according to the road classification (Major or Local) of the respective road. The extents of this Bid Item are within the existing excavated area required for the completion of service line replacement work.
 - B. The unit price for this item shall constitute providing all material, labor and equipment to complete the restoration of the area excavated to complete service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing temporary restoration material; saw cutting of existing paving and /or concrete; compaction of subgrade; application of tack and prime coat material; placement of reinforcement including dowelling of reinforcement bar into existing concrete base; placement of concrete base course; placement and compaction of bituminous paving; sealing of joint between new and existing material; and all other necessary items and work to provide a complete, fully restored roadway.
 - C. Roads identified by Public Works Department and Director of Transportation as “Major Roads” shall be prioritized for final restoration and restored prior to completing restoration work in “Local Roads”.
- 1.6 BID ITEM R.3 – CONCRETE ROADWAY, STATE HIGHWAYS; BID ITEM R.4 – CONCRETE ROADWAY, MAJOR ROADS; AND BID ITEM R.5 – CONCRETE ROADWAY, LOCAL ROADS:
- A. The quantity to be paid under this Bid Item shall be equal to the actual number of square feet of concrete road restoration completed and accepted by Engineer according to the road classification (State Highway, Major Road or Local Road) of the respective road. The extents of this Bid Item are within the existing excavated area required for the completion of service line replacement work.
 - B. The unit price for this item shall constitute providing all material, labor and equipment to complete the restoration of the area excavated to complete service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing

temporary restoration material; saw cutting of existing paving or concrete; compaction of subgrade; application of tack and prime coat material; placement of reinforcement including dowelling of reinforcement bar into existing concrete base; placement and finishing of concrete; sealing of joint between new and existing material; and all other necessary items and work to provide a complete, fully restored roadway.

- C. State Highways and roads identified by Public Works Department and Director of Transportation as “Major Roads” shall be prioritized for final restoration and restored prior to completing restoration work in “Local Roads”.

1.7 BID ITEM R.6 – ASPHALT DRIVEWAY:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of square feet of bituminous driveway restoration completed and accepted by Engineer. The extents of this Bid Item are within the existing excavated area required for the completion of hydrovac investigation or service line replacement work.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete the restoration of the area excavated to complete hydrovac investigation or service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing temporary restoration material; saw cutting of existing paving; excavation and compaction of subgrade; placement and compaction of aggregate base; application of tack and prime coat material; placement of reinforcement including dowelling of reinforcement bar into existing concrete base; placement and compaction of bituminous paving; sealing of joint between new and existing material; and all other necessary items and work to provide a complete, fully restored driveway.

1.8 BID ITEM R.7 – CONCRETE DRIVEWAY:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of square feet of concrete driveway restoration completed and accepted by Engineer. The extents of this Bid Item are within the existing excavated area required for the completion of hydrovac investigation or service line replacement work.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete the restoration of the area excavated to complete hydrovac investigation or service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing temporary restoration material; saw cutting of existing concrete; excavation and compaction of subgrade; placement and compaction of aggregate base; erection of concrete forms; placement of WWF reinforcement; placement and finishing of concrete; and all other necessary items and work to provide a complete, fully restored driveway.

1.9 BID ITEM R.8 – CURB AND GUTTER:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of linear feet of concrete curb and gutter constructed and accepted by Engineer. The extents of this Bid Item are within the existing excavated area required for the completion of hydrovac investigation or service line replacement work.
- B. The unit price for this item shall constitute providing all material, labor and equipment to construct the curb and gutter in the area excavated to complete hydrovac investigation or service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing temporary restoration material; saw cutting of existing curb, gutter, and paving; excavation and compaction of subgrade; placement and compaction of aggregate base; erection of concrete forms; placement of reinforcement including dowelling of reinforcement bar into existing curbing; placement and finishing of concrete; and all other necessary items and work to provide a complete, fully installed concrete curb and gutter.
- C. All curb and gutter replacement will be done in kind meaning it will match the existing curb and gutter profile and size. Curb and gutter replacement will meet MDOT specifications and require the area under the curb to be compacted prior to placing concrete.

1.10 BID ITEM R.9 – CONCRETE SIDEWALK:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of square feet of concrete sidewalk restoration completed and accepted by Engineer. The extents of this Bid Item are within the existing excavated area required for the completion of hydrovac investigation or service line replacement work.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete the restoration of the area excavated to complete hydrovac investigation or service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing temporary restoration material; saw cutting of existing concrete; excavation and compaction of subgrade; placement and compaction of aggregate base; erection of concrete forms; placement of WWF reinforcement and joint filler; placement and finishing of concrete; and all other necessary items and work to provide a complete, fully restored sidewalk.

1.11 BID ITEM R.10 – GREENBELT AND LAWN AREA:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of square feet of greenbelt and lawn area restoration completed and accepted by Engineer. The extents of this Bid Item are within the existing excavated area required for the completion of hydrovac investigation or service line replacement work.

- B. The unit price for this item shall constitute providing all material, labor and equipment to complete the restoration of the area excavated to complete hydrovac investigation or service line replacement work, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; excavation, removal and disposal of existing temporary restoration material; excavation and compaction of subgrade; placement of topsoil; seeding; and all other necessary items and work to provide a complete, fully restored greenbelt and lawn area.

1.12 BID ITEM SLR.1, SLR.4, SLR.7 AND SLR.10 - WATER SERVICE, VARIOUS SIZE (3/4" THROUGH 2") PARTIAL REPLACEMENT, PUBLIC SIDE:

- A. The quantity to be paid under these Bid Items shall be equal to the actual number of replacements completed, tested and accepted by Engineer, according to the diameter of the service line installed. The extents of this Bid Item are from, and include the corporation stop connection at the municipal water main up to and including the curb stop.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete a partial replacement of existing water service line, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; providing alternate or temporary service if needed; all excavation; permanent and temporary shoring; dewatering; all piping, fittings and adapters; connecting to existing facilities, piping and fittings; backfill and compaction; testing; disinfection and flushing; removal and disposal of excess material, including existing lead and galvanized steel piping and contaminated soil; restoration where not specifically included in other Bid Items; and all necessary items and work to provide a complete, working water service connection.
- C. The unit price for this item shall constitute full compensation for the excavation, replacement, and associated tasks for each partial service line replacement completed as specified, regardless of depth and location. Work includes, but is not limited to locating the existing curb box; removal and disposal of existing sidewalk, driveway, curb and paving as necessary to complete the service line replacement; disconnection and abandonment of existing service line material; installation of a new corporation stop; installation of new service line piping of a diameter matching the existing piping; installation of a new curb stop and box; reconnection of new and existing components; and documentation of work completed.
- D. Payment for this Bid Item shall be for the first 60 LF of service line replaced. Payment for additional service line replacement beyond the initial 60 LF shall be made according to Bid Item SLR.13.
- E. Credit for 3/4" copper service line material furnished by the City shall be made according to the unit price provided under Bid Item OPM.1.
- F. A new corporation stop and connection to the municipal water main will be installed for each residential water service line in those instances where multiple service lines manifold into a single service connection at the municipal water main. Each residential water service line will be provided with a dedicated corporation stop and connection to the municipal water distribution system. New corporation stops and connections to the municipal water system are considered incidental and are to be included in the unit price for the work.
- G. The Contractor will be required to file and pay for an excavation permit to complete the work. All permitting efforts and fees related to excavation is considered

incidental and are to be included in the unit price for the work.

- H. City inspectors will provide the final approval regarding the acceptance of the service line replacement work. No backfilling of the excavation shall occur until this approval is provided. The service line will be repaired as directed if the installation is not approved by the City Inspector. This work will be completed at no additional cost to the City. Contractor time, material and labor costs associated with obtaining this approval is considered incidental to the work. The Contractor should assume that the inspection approval may take up to 30 minutes from the time the City inspector is contacted.

1.13 BID ITEMS SLR.2, SLR.5, SLR.8 AND SLR.11 - WATER SERVICE, VARIOUS SIZE (3/4" THROUGH 2") PARTIAL REPLACEMENT, PRIVATE SIDE:

- A. The quantity to be paid under these Bid Items shall be equal to the actual number of replacements completed, tested and accepted by Engineer, according to the diameter of the service line installed. The extents of this Bid Item are from, and include the connection at the curb stop up to the residential water meter.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete a partial replacement of existing water service line, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; providing alternate or temporary service if needed; all excavation; permanent and temporary shoring; dewatering; all piping, fittings and adapters; connecting to existing facilities, piping and fittings; backfill and compaction; testing; disinfection and flushing; removal and disposal of excess material, including existing lead and galvanized steel piping and contaminated soil; restoration where not specifically included in other Bid Items; and all necessary items and work to provide a complete, working water service connection.
- C. The unit price for this item shall constitute full compensation for the excavation, replacement, and associated tasks for each partial service line replacement completed as specified, regardless of depth and location. Work includes, but is not limited to locating the existing curb box; removal and disposal of existing sidewalk, driveway, curb and paving as necessary to complete the service line replacement; disconnection and abandonment of existing service line material; installation of new service line piping of a diameter matching the existing piping; installation of a new curb stop and box; core drilling through and restoration of the house wall or basement floor; containment, collection and disposal of dust and debris caused by installation of the water service line through the house wall; installation of a sampling port; relocation of the existing meter as necessary; reconnection of new and existing components; and documentation of work completed.
- D. Payment for this Bid Item shall be for the first 60 LF of service line replaced. Payment for additional service line replacement beyond the initial 60 LF shall be made according to Bid Item SLR.13.
- E. Credit for 3/4" copper service line material furnished by the City shall be made according to the unit price provided under Bid Item OPM.1.
- F. The Contractor will be required to file and pay for an excavation permit to complete

the work. All permitting efforts and fees related to excavation is considered incidental and are to be included in the unit price for the work.

- G. The Contractor will be required to file and pay for a plumbing permit if the residential water meter is moved more than 2' in any direction from its current location. All permitting efforts and fees related to moving the water meter are considered incidental and are to be included in the unit price for the work.
- H. City inspectors will provide the final approval regarding the acceptance of the service line replacement work. No backfilling of the excavation shall occur until this approval is provided. The service line will be repaired as directed if the installation is not approved by the City Inspector. This work will be completed at no additional cost to the City. Contractor time, material and labor costs associated with obtaining this approval is considered incidental to the work. The Contractor should assume that the inspection approval may take up to 30 minutes from the time the City inspector is contacted.
- I. A plumbing permit and subsequent inspection will be required in the event the existing water meter is moved more than 2' from its existing location. The Contractor is responsible for applying for and obtaining the proper permits required, including any fees, and for scheduling the final inspection. Any repairs or revisions required, as well as any permit reapplications or re-inspections, as a result of a failed plumbing inspection shall be made by the Contractor at no additional cost to the Owner.

1.14 BID ITEM SLR.3, SLR.6, SLR.9, SLR.12 WATER SERVICE, VARIOUS SIZE (3/4" THROUGH 2") FULL REPLACEMENT:

- A. The quantity to be paid under these Bid Items shall be equal to the actual number of replacements completed, tested and accepted by Engineer, according to the diameter of the service line installed. The extents of this Bid Item are from, and include the corporation stop connection at the municipal water main up to the residential water meter.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete a partial replacement of existing water service line, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; providing alternate or temporary service if needed; all excavation; permanent and temporary shoring; dewatering; all piping, fittings and adapters; connecting to existing facilities, piping and fittings; backfill and compaction; testing; disinfection and flushing; removal and disposal of excess material, including existing lead and galvanized steel piping and contaminated soil; restoration where not specifically included in other Bid Items; and all necessary items and work to provide a complete, working water service connection.
- C. The unit price for this item shall constitute full compensation for the excavation, replacement, and associated tasks for each complete service line replacement completed as specified, regardless of depth and location. Work includes, but is not limited to locating the existing curb box; removal and disposal of existing sidewalk, driveway, curb and paving as necessary to complete the service line replacement; disconnection and abandonment of existing service line material; installation of a new corporation stop; installation of new service line piping of a diameter matching the existing piping; installation of a new curb stop and box; core drilling through and restoration of the house wall or basement floor; containment, collection and disposal of dust and debris caused by installation of the water service line through the house wall; installation of a sampling port; relocation of the existing meter as necessary; reconnection of new and existing components; and documentation of work completed.
- D. Payment for this Bid Item shall be for the first 60 LF of service line replaced. Payment for additional service line replacement beyond the initial 60 LF shall be made according to Bid Item SLR.13.
- E. Credit for 3/4" copper service line material furnished by the City shall be made according to the unit price provided under Bid Item OPM.1.
- F. A new corporation stop and connection to the municipal water main will be installed for each residential water service line in those instances where multiple service lines manifold into a single service connection at the municipal water main. Each residential water service line will be provided with a dedicated corporation stop and connection to the municipal water distribution system. New corporation stops and connections to the municipal water system are considered incidental and are to be included in the unit price for the work.

- G. The Contractor will be required to file and pay for an excavation permit to complete the work. All permitting efforts and fees related to excavation is considered incidental and are to be included in the unit price for the work.
- H. The Contractor will be required to file and pay for a plumbing permit if the residential water meter is moved more than 2' in any direction from its current location. All permitting efforts and fees related to moving the water meter are considered incidental and are to be included in the unit price for the work.
- I. City inspectors will provide the final approval regarding the acceptance of the service line replacement work. No backfilling of the excavation shall occur until this approval is provided. The service line will be repaired as directed if the installation is not approved by the City Inspector. This work will be completed at no additional cost to the City. Contractor time, material and labor costs associated with obtaining this approval is considered incidental to the work. The Contractor should assume that the inspection approval may take up to 30 minutes from the time the City inspector is contacted.
- J. A plumbing permit and subsequent inspection will be required in the event the existing water meter is moved more than 2' from its existing location. The Contractor is responsible for applying for and obtaining the proper permits required, including any fees, and for scheduling the final inspection. Any repairs or revisions required, as well as any permit reapplications or re-inspections, as a result of a failed plumbing inspection shall be made by the Contractor at no additional cost to the Owner.

1.15 BID ITEM SLR.13 ADDITIONAL COPPER SERVICE LINE, >60 LF

- A. The quantity to be paid under this Bid Item shall be equal to the additional LF greater than 60, used to complete either the full or partial replacement of the water service line in entirety. Measurement and payment for this Bid Item will be made without consideration of the diameter of the service line or the means and methods used to complete the water service replacement.
- B. All work and requirements for the completion of either full or partial service line replacement apply to this Bid Item.
- C. This Bid Item is for the total length of the service line replaced and will only be made once for each service line.
- D. Measurement and payment for the initial 60 LF of either partial or full replacement of the service line will be made under the respective diameter and replacement extent classification of Bid Items SLR.1 through SLR.12.

1.16 BID ITEM SLR.14 SLR, SHPO ZONE W/ ARCHEOLOGIST

The quantity to be paid under this Bid Item shall be equal to number of sites in the SHPO Zone where an archeologist will inspect the excavation to determine if any historical artifacts are observed in the excavation area. Owner shall contract with an archaeologist as necessary. Measurement and payment for this Bid Item will be made

without consideration of the diameter of the piping, the type of work being completed, or the means and methods used to complete the work.

- A. All work and requirements for the completion of either full or partial service line replacement or other work apply to this Bid Item.
- B. Payment shall only be made once for each excavation site.
- C. No backfilling of the excavation shall occur until the archeologist confirms that the site is free of historical artifacts and can be backfilled. This Bid Item accounts for the Contractors time, material and labor until the site is cleared by the archeologist. Payment for this Bid Item will only be made once for each service line. The Contractor should assume that the archeological investigation may take up to 1 hour for each site.
- D. Measurement and payment for the actual service line replacement work will be made under the respective diameter, length and replacement extent classification of Bid Items SLR.1 through SLR.13.

1.17 BID ITEM M.1 CUT & CAP, ABANDONED HOUSE SERVICE:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of residential service lines cut, capped, and accepted by Engineer.
- B. Measurement and payment for this Bid Item will be made without consideration of the diameter of the service line.
- C. The unit price for this item shall constitute providing all material, labor and equipment to cut and cap a lead or galvanized service line to an abandoned property including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; all excavation; permanent and temporary shoring; dewatering; all piping, fittings and adapters; backfill and compaction; removal and disposal of excess material; and restoration where not specifically included in other Bid Items.
- D. The unit price for this item shall constitute full compensation for the excavation and associated tasks for each lead or galvanized service line cut and capped regardless of depth and location. Work includes, but is not limited to locating the existing curb box; removal and disposal of existing sidewalk, driveway, curb and paving as necessary to complete the service line abandonment; disconnection and abandonment of existing service line material; and documentation of work completed.
- E. The Contractor will be required to file and pay for an excavation permit to complete the work. All permitting efforts and fees related to excavation is considered incidental and are to be included in the unit price for the work.
- F. City inspectors will provide the final approval regarding the acceptance of the abandonment work. No backfilling of the excavation shall occur until this approval is provided. The service line will be repaired as directed if the abandonment is

not approved by the City Inspector. This work will be completed at no additional cost to the City. Contractor time, material and labor costs associated with obtaining this approval is considered incidental to the work. The Contractor should assume that the inspection approval may take up to 30 minutes from the time the City inspector is contacted.

1.18 BID ITEM M.2 SANITARY LATERAL INSPECTION:

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of residential sanitary sewer laterals inspected. The extents of this Bid Item include the connection at the municipal sewer main to the cleanout outside the home or the exterior basement wall if no cleanout exists.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete a full CCTV inspection of the residential sewer lateral for properties where the water service line will be partially or completely replaced, including but not limited to: protecting existing facilities; documentation and provision of inspection data; and other associated work to provide a complete inspection.
- C. The unit price for this item shall constitute full compensation for the inspection of the residential sewer lateral as specified, regardless of depth and location. Work includes, but is not limited to locating the existing access point; control of flow within the sewer and lateral; and documentation of work completed.

1.19 BID ITEM M.3 SANITARY LATERAL REPAIR

- A. The quantity to be paid under this Bid Item shall be equal to the actual number of residential sanitary sewer laterals repaired and accepted by Engineer. The extents of this Bid Item will be as necessary to replace lateral piping determined to be in a deteriorated structural state prior to the start of the service line replacement work.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete the repair of a residential sanitary sewer lateral, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; providing alternate or temporary service if needed; all excavation; permanent and temporary shoring; dewatering; all piping, fittings and adapters; connecting to existing facilities, piping and fittings; backfill and compaction; removal and disposal of excess material; restoration where not specifically included in other Bid Items; and all necessary items and work to provide a working residential sanitary sewer lateral.
- C. The unit price for this item shall constitute full compensation for the excavation and associated tasks for each sewer lateral repair completed as specified, regardless of depth and location. Work includes, but is not limited to locating the existing sewer lateral; removal and disposal of existing sidewalk, driveway, curb and paving as necessary to complete the repair; removal and disposal of deteriorated or damaged lateral piping; installation of a new piping and couplings; reconnection of new and existing components; and documentation of work

completed.

Repairs required to be made as a result of damage caused by the Contractor will not be paid under this or any other Bid Item. The Contractor will be responsible to repair any residential sewer lateral damaged by the Contractor during the execution of the work at no additional cost to the Owner.

- D. The Contractor will be required to file and pay for an excavation permit to complete the work. All permitting efforts and fees related to excavation is considered incidental and are to be included in the unit price for the work.
- E. City inspectors will provide the final approval regarding the acceptance of the lateral repair work. No backfilling of the excavation shall occur until this approval is provided. The sanitary lateral will be re-repaired as directed if the repair is not approved by the City Inspector. This work will be completed at no additional cost to the City. Contractor time, material and labor costs associated with obtaining this approval is considered incidental to the work. The Contractor should assume that the inspection approval may take up to 30 minutes from the time the City inspector is contacted.

1.20 BID ITEM M.4 LSM, UNSTABLE TRENCH BOTTOM

- A. The quantity to be paid under this item shall be equal to the actual number of cubic yards of low strength concrete material placed to stabilize the foundation of an excavation when the installation of aggregate does not provide a suitable foundation.
- B. The unit price for this item shall constitute providing all material, labor and equipment to complete the placement of LSM, including but not limited to: installation, delivery, storage and handling of materials; protecting existing facilities; all excavation; permanent and temporary shoring; dewatering; removal and disposal of excess material and documentation of work completed.
- C. Placement of LSM shall only be made at the direction of the Engineer.
- D. Excavation and placement of aggregate to stabilize the trench shall be considered incidental to this Bid Item and all other bid items.
- E. This Bid Item is only for providing and placing the LSM. Measurement and payment for the infrastructure work completed will be made under the respective bid item.

1.21 BID ITEM M.5 TRAFFIC CONTROL, FLAGMEN / POLICE ASSISTED

- A. The quantity to be paid under this item shall be equal to the number of hours flagmen or police are required to maintain traffic control as required by the traffic control permit.
- B. The unit price for this item shall constitute providing all material, labor and equipment, including police vehicles, to maintain the safe flow of traffic when specifically required by the traffic control permit, and not required simply for

Contractor's convenience.

- C. The unit price for this item shall constitute full compensation for all labor, equipment, materials, filing and acquisition of permits, permit fees, and other incidental work necessary to perform the work in accordance with the traffic control permit for the specific site and as required by local laws and regulations.
- D. Measurement for payment shall be based on the actual number of hours that traffic control is provided by off-duty police officers or flagmen during the work, regardless of the number of officers or flagmen required to maintain traffic. Traffic controls will be paid only for the time controls are in place and being implemented and not a cumulative total for each man hour worked by each police officer or flagman. The Contractor will not be compensated for travel and set-up / break-down time of the traffic control measures.
- E. Static traffic controls such as cones, barricades, barrels, arrow boards, vehicles and truck mounted attenuators are considered incidental to this, and all other Bid Items.

1.22 BID ITEMS M.6 AND M.7 TREE REMOVAL

- A. The quantity to be paid under this item shall be equal to the actual number of trees removed according to the diameter of the tree measured at a point 6" above grade.
- B. The unit price for this item shall constitute providing all material, labor and equipment to completely remove a tree, including but not limited to: protecting existing facilities; notifications; offering wood to homeowner; chipping and removal of branches; arborist to properly identify and dispose of diseased trees; all excavation and stump removal, backfill and compaction; disposal of excess material; restoration where not specifically included in other Bid Items; and all necessary items and work to provide complete, tree removal.
- C. Measurement of the tree diameter shall be made between the narrowest points across the center of the tree stump.
- D. Tree removals shall only be completed at the direction of the Engineer and upon receiving authorization from the property owner to remove the tree.

1.23 BID ITEM EXP.1 EXPLORATION / EXCAVATION

- A. The quantity to be paid under this item shall be equal to the actual number of excavations completed that provide the ability to identify the material of construction of the existing water service line. This work will only be completed for service lines that were not identified during the Phase V Exploratory Excavation and those requiring new Phase VI exploration. Excavation will be made at the estimated location on both sides of the existing curb stop or where directed by the Engineer.
- B. The unit price for this item shall constitute full compensation for the excavation, restoration, and associated tasks for each excavation completed as specified, regardless of depth and location. Work includes, but is not limited to locating the

existing curb box or service line, confirmation and documentation of the material of construction for the existing water service line, backfilling of excavation, and restoration of disturbed areas.

Replacement of the water service line shall be made to the extents necessary if the service line material is identified as lead, galvanized steel or other non-copper material. Measurement and payment for this work will be made under the appropriate Bid Item SLR.1 through SLR.12.

C. Exploratory excavation work will only be conducted at the direction of the Engineer.

1.24 BID ITEM OPM.1 CREDIT FOR OWNER PROVIDED MATERIALS, ¾" COPPER SERVICE LINE (60' COIL)

A. The quantity of this Bid Item to be credited from the Contractor to the Owner shall be equal to the actual number of 60' coils of ¾" Type K copper provided by the Owner to the Contractor.

B. The unit price for this Bid Item shall constitute full compensation credit from the Contractor to the Owner for the provision of 60' coils of ¾" Type K copper by the Owner to the Contractor.

C. This Bid Item will not be considered in the overall cost of the Contract.

D. This Bid Item is for the provision of material only. Measurement and payment for actual service line replacement work will be made under the appropriate Bid Item SLR.1 through SLR.3.

E. The Contractor will be responsible for picking up the copper coils from the City of Flint's Water Service Center, 3310 E. Court Street and delivering the coils to the appropriate work sites.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRECONSTRUCTION CONFERENCE:

- A. Engineer will schedule and conduct preconstruction conference in accordance with General Conditions and this section.
- B. Meeting will be conducted before Contractor starts Work at site.
- C. Location: At location to be selected by Engineer and Owner.
- D. Attendance.
 - 1. Contractor's Project Manager(s).
 - 2. Contractor's Resident Superintendent(s).
 - 3. Contractor's project manager designated to submit Shop Drawings to Engineer.
 - 4. Engineer's representatives.
 - 5. Owner's representatives.
 - 6. Local utility representatives, if applicable.
- E. Suggested format includes, but not be limited to following:
 - 1. Project safety and traffic controls.
 - 2. Execution of the work.
 - 3. Disposal of spoils material.
 - 4. Presentation of preliminary progress schedule in accordance with Section 01 32 17 "Construction Progress Schedules" and preliminary schedule of submittals in accordance with Section 01 33 00 "Submittals" of Contract Documents.
 - 5. Check of required bonds and insurance policies prior to Notice to Proceed.
 - 6. Liquidated damages.
 - 7. Procedures for handling submittals such as substitutions and Shop Drawings.
 - 8. Direction of correspondence and coordinating responsibility.

9. Progress meetings with the Engineer.
10. Equal opportunity requirements.
11. Provisions for inventory of material stored on-site or Owner-provided materials.
12. Unit pricing, application for progress payment, and progress payment procedures.
13. Change Order procedures.
14. Contractor's proposed Health and Safety Plan.
15. Contractor's proposed Quality Control Plan.
16. Construction sequencing and stipulated construction and constraints.

1.2 PROGRESS MEETINGS WITH ENGINEER:

- A. In addition to other regular project meetings for other purposes (as indicated elsewhere in the Contract Documents), hold general progress meetings, as discussed at the pre-construction meeting, with times coordinated with preparation of payment requests. Meeting dates shall be established by the Engineer. Require every entity then involved in the planning, coordination or performance of work to be properly represented at each meeting. Include, when applicable:
 1. Owner
 2. Consultants
 3. Separate contractors (if any)
 4. Principal subcontractors
 5. Governing authorities
 6. Special supervisory personnel and others with an interest or expertise in the progress of the work.
- B. Suggested format includes, but not limited to following:
 1. Review each entity's present and future needs including interface requirements
 2. Construction sequence and coordination
 3. Construction schedule and progress reporting
 4. Deliveries
 5. Access

6. Site utilization
 7. Temporary facilities and services
 8. Hours of work
 9. Safety, hazards and risks
 10. Housekeeping
 11. Submittals
 12. Change managements (request for quotation, change directives, change orders)
 13. Contract administration logs (request for information, etc.)
 14. Documentation of information for payment requests
- C. Discuss whether each element of current work is ahead of schedule. Determine how behind-time work will be expedited and secure commitments from the entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within the Contract Time. Review everything of significance which could affect the progress of the work.
- D. Within five days after each progress meeting date, the Engineer will forward copies of the minutes-of-the-meeting, to the Contractor.
- E. Immediately following each progress meeting where revisions to the Progress Schedule/Critical Path Schedule have been made or recognized (regardless of whether agreed to by each entity represented), revise the Schedule. Reissue revised Schedule within 10 working days after meeting.
- F. At intervals matching the preparation of payment requests, revise and reissue the Schedule to show actual progress of the work in relation to the latest revision of the Schedule.
- 1.3 CONSTRUCTION FOREMEN'S MEETING:
- A. Schedule weekly.
 - B. Location: Contractor's field office or on-site.
 - C. Attendance.
 1. Resident superintendent.
 2. Subcontractor's foremen.
 - D. Suggested Agenda.

1. Health and safety.
2. Review agenda of Work progress since previous meeting.
3. Proposed progress and schedule for succeeding Work period.
4. Field observations, problems, and conflicts.
5. Problems which affect construction schedule.
6. Coordination and shutdown requirements.

1.4 HEALTH AND SAFETY MEETING:

- A. Schedule Biweekly.
- B. Location: Contractor's field office or on-site.
- C. Attendance.
 1. Resident superintendent.
 2. Subcontractor's foremen.
 3. Contractors. Health and Safety Manager
 4. Owner's Health and Safety Representative
 5. Engineer's Health and Safety Representative
- D. Suggested Agenda.
 1. Health and safety statistics.
 2. Review Work progress since previous meeting.
 3. New staff and training requirements.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 32 17

CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide Construction Progress Schedules as indicated and specified.
- B. Summary:
 - 1. Section includes administrative and procedural requirements for planning, monitoring, and documenting the progress of construction during performance of the Work, including the following:
 - a. Startup construction schedule.
 - b. Contractor's construction schedule.
 - c. Construction schedule updating reports.
- C. The Contractor has the obligation and responsibility at all times to plan and monitor all of its activities, anticipating and scheduling its staff, materials, plant and Work methods in a manner that is likely to ensure completion of the Work in accordance with the terms and conditions of the Contract and at a rate that will allow it to be completed within the Contract Time.

1.2 SUBMITTALS:

- A. Submit in accordance with Section 01 33 00.
- B. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file, where indicated.
 - 2. PDF electronic file.
- C. Startup construction schedule.
 - 1. Within 15 days after execution of the AGREEMENT, submit three copies of a preliminary schedule indicating planned operations during first 60 days. Include cost of activities expected to be completed before submission and acceptance of the complete schedule.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

1.3 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.

1.4 COORDINATION:

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL:

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

- B. Activities: Treat work area and / or crew as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Engineer. The durations shall be determined based upon resource planning under contractually-defined on-site work conditions. The Engineer may require that the duration of major activities be calculated by the scheduling software on the basis of the planned rate of daily production. In calculating activity durations, normal inclement weather shall be considered.

2. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow no fewer than 20 days for Engineer's administrative procedures necessary for certification of Substantial Completion.

4. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

- C. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

D. Recovery Schedule:

1. When periodic update indicates the Work is 14 or more calendar days behind the current accepted schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
2. If, at any time, the Work is behind schedule with respect to the progress schedule currently in force, and if the Engineer believes there is a risk of the Work not being completed within the Contract Time as a result of such delay, the Contractor shall take all necessary measures to make up for such delay either by increasing staff, equipment, or by amending its Work methods, whichever is applicable, with no change to the Contract Price.

E. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART):

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.3 CONTRACTOR'S LOOK-AHEAD SCHEDULES:

- A. The Contractor shall provide short interval "look ahead" schedules bi-weekly, identifying Work that has been performed during the past two weeks and activities that are planned for the next four weeks. The short interval schedule shall be consistent with the progress schedule currently in force.
- B. The Look-Ahead Schedules shall generally reflect the Work associated with the Detailed Progress Schedule. The activities in the Look-Ahead Schedules shall be identified by the same number coding as the Detailed Progress Schedule and revised as necessary.
- C. The final format of the look-ahead schedules will be determined by the Engineer and Owner.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE:

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of accepted schedule to Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. When revisions are made, distribute updated schedules to the same parties. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 01 32 33

CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide construction photographs pertinent to the Contract work during the Contract period as specified.
 - 1. Section includes administrative and procedural requirements for the following:
 - a. Preconstruction photographs.
 - b. Periodic construction photographs.
 - c. Final completion construction photographs.

1.2 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Section 01 33 00.
 - 1. Pre-construction photographs documenting existing site conditions at each property where restoration work will occur.
 - 2. Post-construction photographs documenting final site conditions at each property where restoration work has occurred.
- B. Digital Photographs: Submit image files within three days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of eight megapixels.
 - 2. Format: Minimum 3200 x 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
 - 3. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project and Owner's project number.
 - b. Name of Engineer.
 - c. Name of Contractor.
 - d. Date and location (address) photograph was taken.

- e. Description of vantage point, indicating location, direction (by compass point), and elevation of construction.
- f. Unique sequential identifier keyed to accompanying key plan.

1.3 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Photographer to use techniques, material and equipment capable of producing photographs of high quality and resolution.
- C. Photographer to be available on call on one day notice when requested by Engineer and be prepared to respond on shorter notice in unusual or unexpected conditions.
- D. Photographer to make and retain detailed records of all photographs by photographer under this Contract:
 - 1. The records to be in sufficient detail to support any attestation that may be required of photographer.
 - 2. Photographer to retain such records for a period not less than two years from the final acceptance of entire work under this Contract.

1.4 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01 66 10.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA:

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of eightmegapixels, and at an image resolution of not less than 3200 x 2400 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS:

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in file name for each image.
- D. Pre-construction Photographs: Before starting construction, take photographs of Project site, including existing items to remain during construction, from different vantage points at each property where restoration work will occur.
1. Flag or otherwise identify restoration areas before taking photographs.
 2. Take a minimum of two photographs to show existing conditions before starting the Work.
 3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- E. Final Completion Construction Photographs: Take a minimum of two photographs of the site upon completion of the restoration work at each property.

END OF SECTION

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SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals.
 - 1. Shop Drawings.
 - 2. Construction Photographs.
 - 3. Contractor's Responsibilities.
 - 4. Submission Requirements.
 - 5. Review of Shop Drawings.
 - 6. Distribution.
 - 7. General Procedures for Submittals.
 - 8. Certificate of Design.
 - 9. Certificates of Compliance.
 - 10. Schedules.
- B. Additional general submission requirements are contained in Paragraph 6.17 of the General Conditions.
- C. Detailed submittal requirements will be specified in the technical specifications section.

1.2 DEFINITIONS:

- A. Written and graphic information that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Portable Document Format (.pdf): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.3 SUBMITTALS:

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with Contractor's construction schedule.
 - 2. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Description of the Work covered.
 - e. Scheduled date for Engineer's final release or acceptance.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS:

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with purchasing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on accepted submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. The Contractor shall revise and resubmit rejected submittals and those requiring corrections or verification of information in a timely manner such that the overall progress of the Work is not impeded.
 - 5. Coordination of Submittal Times: The Contractor shall prepare and transmit each submittal sufficiently in advance of performing the related Work or other applicable activities, or within the time specified in the individual Sections of the Specifications, so that the installation will not be delayed by processing times, including rejection and resubmittal (if required), coordination with other submittals, purchasing, delivery, and similar sequenced activities. No extension of

Contract Time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

- B. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 working days for review of each resubmittal.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 - 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 - 3. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Engineer, containing the following information, as applicable:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name of Contractor.

- e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Indication of full or partial submittal.
 - l. Transmittal number, numbered consecutively.
 - m. Submittal and transmittal distribution record.
 - n. Other necessary identification.
 - o. Remarks.
- E. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- F. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with acceptance notation from Engineer's action stamp.
- G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with acceptance notation from Engineer's action stamp.

1.5 CONSTRUCTION PHOTOGRAPHS:

- A. The Contractor shall provide construction photographs in accordance with requirements specified in Section 01 32 33.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES:

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

- 1. Submit electronic submittals via email as .pdf electronic files.

- a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

- B. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- C. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineer and owners, and other information specified.
- E. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES:

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

- 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW:

- A. Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents prior to submission to the Engineer. Mark with approval stamp before submitting to Engineer.
- B. Contractor review shall verify the following:
 - 1. Catalog numbers and similar data
 - 2. Conformance with the Contract Documents
- C. If a submittal shows any deviation from the requirements of the Contract Documents, the Contractor shall make specific mention of the deviations in the Transmittal Form furnished by the Engineer and provide a description of the deviations in a letter attached to the submittal.
- D. The review and approval of submittals or product data by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will not have responsibility for any such errors and omissions.
- E. No portion of the work requiring a submittal or product data shall be started nor shall any materials be installed prior to the approval or qualified approval of such item by the Engineer. Any materials purchased or on-site construction accomplished which does not conform to accepted submittals and data shall be at the Contractor's own risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity with the requirements of the Contract.
- F. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S ACTION:

- A. The Engineer's review is for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the Contract Documents or from departures therefrom. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for techniques of assembly, and for performing work in a safe manner.
- B. Submittals will be reviewed for the Contractor's approval stamp. Submittals not stamped by the Contractor will be returned without any action.

- C. The review of submittals and data will be general. They shall not be construed:
1. as permitting any departure from the Contract requirements;
 2. as relieving the Contractor of responsibility for any errors or omissions, including details, dimensions, and materials;
 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- D. If the submittals or data as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
- E. Submittals will be returned to the Contractor under one of the action codes indicated below and defined on the transmittal form furnished by the Engineer.
1. Marking: No Exception Taken.
 - a. When submittals are marked as “No Exception Taken,” Work covered by submittal may proceed provided it complies with Contract Documents. Acceptance of Work depends on that compliance.
 2. Marking: Make Corrections Noted.
 - a. When submittals are marked as “Make Corrections Noted,” Work covered by submittal may proceed provided it complies with Engineer’s notations or corrections on submittal and with Contract Documents. Acceptance of Work depends on that compliance. Resubmittal not required.
 3. Marking: Amend and Resubmit.
 - a. When submittals are marked as “Amend and Resubmit,” do not proceed with Work covered by submittal. Do not permit Work covered by submittals to be used at Project site or elsewhere where Work is in progress.
 - b. Revise submittal or prepare new submittal in accordance with Engineer’s notations in accordance with resubmittal requirements of this section. Resubmit without delay. Repeat if required to obtain different action marking.
 4. Marking: Rejected; See Remarks.
 - a. When submittals are marked as “Rejected; See Remarks,” do not proceed with Work covered by submittal. Work covered by submittal does not comply with Contract Documents.

- b. Prepare new submittal for different material or equipment supplier or different product line or material of same supplier complying with Contract Documents.
- 5. Marking: For Information Only.
 - a. When submittals are marked as “For Information Only,” the Engineer will review the submittal but take no action.
 - b. It will be recorded as “For Information Only”. Work covered by this submittal may proceed provided it complies with the Contract Documents.
- 6. Marking: Not Required for Review.
 - a. When submittals are marked as “Not Required for Review,” the Engineer has not reviewed the submittal and it is being returned.
 - b. Work covered by this submittal may proceed provided it complies with the Contract Documents.
- F. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any Work done in relation to revisions which are not specifically pointed out to the Engineer which are deemed, by the Engineer, not to be in accordance with the Contract Documents.
- G. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
- H. If the Contractor considers any correction indicated on the submittals to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer. The submittal and the product data sheet reviews do not authorize changes in Contract Price or Contract Time. Changes involving Contract Price or Contract Time are authorized only by a signed Change Order, in accordance with the General Conditions.
- I. When the submittals have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- J. Material and equipment delivered to the Site will not be paid for until the pertinent submittals have been reviewed and accepted by the Engineer.

3.3 CERTIFICATE OF DESIGN:

- A. If specifically specified in other Sections of these Specifications, the Contractor shall submit the applicable Certificate of Design for each item required, Form 01 33 00-1, completely filled in and signed and sealed by a registered professional engineer.

3.4 CERTIFICATES OF COMPLIANCE:

- A. Certificates of Compliance as specified in the specifications shall include and mean certificates, manufacturer's certificates, certifications, certified copies, letters of certification and certificate of materials.
- B. The Contractor shall be responsible for providing Certificates of Compliance as specified in the technical specifications. Certificates are required for demonstrating proof of compliance with specification requirements and shall be executed in six copies unless otherwise specified. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Supplier, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Supplier from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

3.5 SCHEDULES:

- A. Provide all schedules specified in Articles 2.05B, 2.07, 14.01 and elsewhere in the General Conditions.
- B. Article 14.02 of the General Conditions, Progress Payments, shall be subject to meeting the Schedule Requirements of Section 01 33 00, Table 01 33 00-1. No progress payment identified in Section 01 33 00, Table 01 33 00-1 over the limits identified will be made until the milestones set in this table are satisfied.

Table 01 33 00-1		
Section	Submittal	Payment Milestone
01 32 17	Project schedule is submitted and reaches no exceptions taken status.	Prior to 5% payment
01 33 00	Shop drawings are submitted and reach no exceptions taken status.	Prior to 25% payment.
01 77 00	Record documentation is submitted and reaches no exceptions taken status.	Prior to 95% payment.
01 77 00	Punch list is completed and corrected.	Prior to 95% payment.

END OF SECTION

Form 01 33 00-1

CERTIFICATE OF DESIGN

The undersigned hereby certifies that he/she is a Professional Engineer registered in the state of Michigan and that he/she has been employed by (Name of Contractor) _____ to design _____ in accordance with Specification Section for the Phase VI Restoration Project. The undersigned further certifies that he/she has performed similar designs previously and has performed the design of the _____; that said design is in conformance with all applicable local, state, and federal codes, rules, and regulations and professional practice standards; that his/her signature and Professional Engineer (P.E.) Stamp have been affixed to all calculations and drawings used in, and resulting from, the design; and that the use of that stamp signifies the responsibility of the undersigned for that design.

The undersigned hereby certifies that he/she has Professional Liability Insurance with limits of \$1,000,000.00 and a Certificate of Insurance is attached.

The undersigned hereby agrees to make all original design drawings and calculations available to the Town/City of _____ or Owner's representative within seven (7) days following written request therefore by the Owner.

P.E. Name

Contractor's Name

Signature

Signature

Title

Title

Address

Address

SECTION 01 35 43

PROTECTION OF ENVIRONMENT

PART 1 - GENERAL

1.1 SUMMARY:

- A. Contractor, in executing Work, shall maintain Work areas on- and off-site free from environmental pollution that would be in violation of federal, state or local regulations.
- B. The control of environmental pollution requires consideration of air, water, and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Any contamination shall be reported by the Contractor to the Owner, the Engineer and the Michigan Department of Environmental Quality (DEQ) and cleaned up as per DEQ requirements.
- D. The Contractor shall be responsible for the protection of the natural environment of the site and surrounding areas, both land and water. Protection of the environment must start with avoidance and prevention, and then control/mitigation, compensation, or enhancement (in order of descending preference).
- E. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as sedimentation or filtration systems, hay bales, seeding, mulching, or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, storm sewers, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area.
- F. Ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.
- G. Schedule and conduct all work in a manner that will minimize the level of noise escaping the site, especially at night and on weekends.
- H. Payment:
 - 1. Consider Work specified in this section incidental and include payment as part of appropriate lump sum or unit prices specified in Bid Form.

1.2 REFERENCES:

- A. United States Environmental Protection Agency (USEPA):
 - 1. EPA-72-015: Guidelines for Erosion and Sedimentation Control Planning and Implementation

2. EPA 43019-73-007: Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity

B. Federal Environmental Protection Act and applicable regulations.

C. Michigan Department of Environmental Quality.

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the requirements of Section 01 33 00 "Submittals".

B. Prior to commencing any Work on this Contract and not later than fifteen (15) Working Days following receipt of the Notice to Proceed, the Contractor shall submit Environmental Protection shop drawings for the Engineer's review and approval. Submit shop drawings for the following:

1. Plans and sketches showing areas proposed to be used for construction storage, the Contractor's Site office, vehicle cleaning, equipment fueling and associated access routes.
2. Surface drainage and storm sewer control plan.
3. Erosion and sediment control plan
4. Waterways control plan.
5. Tree protection plan.
6. Mud and dust control plan.
7. Noise control plan.
8. Fuels and lubricants storage and dispensing control plan .
9. Construction Equipment Cleaning control plan.
10. Spills response and spills reporting plan.
11. Excavation spoils disposal plan
12. Historical resources contingency plan.
13. Fuel spills contingency plan

1.4 PROTECTION OF STORM SEWERS:

- A. Prevent construction material (including volatile liquid wastes such as oil, chemicals, and paints), pavement, concrete, earth or other debris from entering existing storm sewer or sewer structure.

1.5 PROTECTION OF WATERWAYS:

- A. Observe rules and regulations of the State of Michigan and U.S. Federal agencies prohibiting pollution of lakes, streams, rivers or wetlands by dumping of refuse, rubbish, dredge material or debris.

1. Permits shall be obtained by Contractor at Contractor's cost.

- B. The Contractor shall not cause or permit action to occur which would cause an overflow to existing waterways. Provide holding ponds or accepted method which will divert flows, including storm flows and flows created by construction activity, to prevent excessive silting of waterways or flooding damage to property.
- C. Comply with procedures outlined in U.S. EPA manuals entitled, "Guidelines for Erosion and Sedimentation Control Planning and Implementation", Manual EPA-72-015 and "Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity", Manual EPA 43019-73-007.

1.6 PROTECTION OF TREES:

- A. No trees are to be cut down unless shown on the Contract Drawings or designated by the Engineer.
- B. The Contractor shall take precautions to prevent damage to existing trees and shrubs, protect branches and foliage, protect trunks and stems, and prevent machinery from travelling over roots within the 'drip-line' of the trees by placing and maintaining snow fencing around each tree outside of the 'drip-line'. The Contractor shall not pile excavated material within the 'drip-line' of existing trees.
- C. Where damage does occur, it must be reported by the Contractor to the Engineer and repaired or replaced by a qualified person as directed by the Engineer. In the event of damage to bark, trunks, limbs, or roots of plants that are not designated for removal, the Contractor shall treat damage by corrective pruning, bark tracing, application of a heavy coating of tree paint, and other accepted horticultural and tree surgery practices.

1.7 DISPOSAL OF EXCESS EXCAVATED AND OTHER WASTE MATERIALS:

- A. Excess excavated material not required or not suitable for backfill and other waste material shall be disposed of in accordance with local regulatory requirements. No spoils materials shall be stored on site or at a location without written approval from the designated storage location.

- B. Provide watertight conveyance for liquid, semi-liquid or saturated solids which tend to bleed during transport. Liquid loss from transported materials is not permitted, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.

1.8 PROTECTION OF AIR QUALITY:

- A. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment and encourage shutdown of motorized equipment not in use.
- B. Do not burn trash on or adjacent to construction site.
- C. If temporary heating devices are necessary for protection of Work, they shall not cause air pollution.
- D. The Contractor shall conduct operations of dumping rock and of carrying rock away in trucks in such a way as to minimize dust. Give unpaved streets, roads, detours, or haul roads used in construction area a dust-preventive treatment or periodically water them to prevent dust. Strictly adhere to all applicable environmental regulations for dust prevention.

1.9 THAWING OF FROZEN GROUND:

- A. Contractor is not authorized to utilize fires as a means to thaw frozen ground.

1.10 USE OF CHEMICALS:

- A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall be approved by U.S. EPA or U.S. Department of Agriculture and any other applicable regulatory agency.
- B. Use and disposal of chemicals and residues shall comply with manufacturer's instructions.

1.11 NOISE CONTROL:

- A. Conduct operations to cause least annoyance to residents in vicinity of Work, and comply with applicable local ordinances.
- B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
- C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
- D. Line storage bins and hoppers with material that will deaden sounds.

- E. Conduct operation of dumping rock and of carrying rock away in trucks so as to cause minimum of noise and dust.
- F. Route vehicles carrying rock, concrete or other material over such streets as will cause least annoyance to public and do not operate on public streets between hours of 5:00 PM and 7:00 AM, or on Saturdays, Sundays or legal holidays unless accepted by Engineer.
- G. No excessive idling of motorized equipment is permitted.
- H. Where necessary, the Contractor shall place noise attenuation devices (barriers) around the Contractor's construction equipment.
- I. Submit a plan to mitigate construction noise and to comply with noise control ordinances, including methods of construction, equipment to be used, and acoustical treatments.

1.12 MUD AND DUST CONTROL:

- A. Due to close geographic location of Project to residential homes, take special care in providing and maintaining temporary site roadways, Owner's existing roads, and public roads used during construction operations in clean, dust free condition.
- B. Comply with local environmental regulations for dust control. If Contractor's dust control measures are considered inadequate by Engineer, Engineer may require Contractor to take additional dust control measures.
- C. The Contractor shall employ only wet type equipment for saw cutting and concrete grinding to control dust nuisance. There shall be no cutting prior to the Engineer's and Owner's approval.
- D. The Contractor shall obtain the Engineer's acceptance before chemicals for dust control are used. Sodium chloride is not permitted for dust control.
- E. All trenches and disturbed areas created during the execution of the Work that will produce dust shall be maintained dust free by an application of calcium chloride at the Engineer's direction.
- F. The Contractor shall not use calcium chloride on access roads.
- G. The Contractor shall transport dusty materials in covered haulage vehicles.
- H. The Contractor shall be responsible for a prompt and complete clean up of all dirt and mud deposited on the public and/or private property as a consequence of the execution of the Work. In the event that the Contractor fails to comply with this obligation the Owner may proceed with the necessary clean up and charge all the costs for the cleanup to the Contractor.

- I. The Contractor shall wash mud from construction vehicles before leaving the construction Site.
- J. The Contractor shall wash and clean the following roads at the end of each work day during the Contract:
 - 1. Major traffic routes and City streets impacted by construction activities.

1.13 CLEANING OF EQUIPMENT

- A. The Contractor shall keep construction equipment clean so that no debris is deposited on any public roadway. The Contractor shall identify a designated vehicle cleaning area within the working limits of the Contract. The Contractor shall contain all construction debris in this designated area only. The Contractor shall dispose of debris off site at an approved facility.
- B. The Contractor shall ensure that debris cleaned from equipment cannot gain access to storm sewers and watercourses.

1.14 FUELS AND LUBRICANTS:

- A. Comply with local, state and federal regulations concerning transportation and storage of fuels and lubricants.
- B. The Contractor shall designate an area within the working limits to be used exclusively for fueling of construction equipment. The Contractor shall carry out all refueling in this area only. Refueling of backhoes or shovels will be allowed at locations other than the accepted refueling areas, but not closer than 30 feet from any watercourse or storm sewer inlet.
- C. Fuel storage area and fuel equipment shall be approved by Owner prior to installation. Submit containment provisions to Engineer for approval.
- D. The Contractor shall submit to the Engineer for review prior to starting the Work, procedures for the interception and rapid clean-up and disposal of fuel spillages which may occur. The Contractor shall ensure that the materials required for the clean-up of fuel spillages are readily accessible on Site at all times.
- E. The cleaning of equipment in streams and lakes and the emptying of fuel, lubricants and pesticides into watercourses or storm sewers is prohibited. The Contractor shall contain fuel, lubricants, pesticides and construction debris and dispose of it off Site in approved locations.
- F. Report spills or leaks from fueling equipment or construction equipment to Engineer and clean-up as required by local, state or federal regulations.
- G. Owner may require Contractor to remove damaged or leaking equipment from Project site.

1.15 CONTINGENCY AND EMERGENCY RESPONSE PLANS:

A. General

1. The Contractor shall adopt a pollution preventative strategy to fulfill its commitment to protecting public and worker health and safety, and the environment. Through this strategy, the potential issues and emergency events that can be anticipated shall be identified by the Contractor and procedures put in place by the Contractor to minimize their potential occurrence.
2. To address any unanticipated events, the Contractor shall develop Contingency and Emergency Response Plans and implement these plans during the performance of the Work.

B. Spills Response and Spills Reporting:

1. Prior to commencing construction, the Contractor shall be responsible for preparing a Spills Response Plan. The Spills Response Plan must address the response, containment, and cleanup of an accidental spill. It must take care of the specific roles and responsibilities of construction staff, accountability, reporting and documentation. Specifically, the plan must include:
 - a. the names and the telephone numbers of the persons in the local municipalities to be notified forthwith of a spill
 - b. the names and the telephone numbers of the representatives of the fire, the police and the health departments of the local municipalities who are responsible to respond to emergency situations
 - c. the names and the telephone numbers of the companies experienced in the control and clean-up of hazardous materials that would be called upon in an emergency involving a spill
 - d. the Contractor's proposal for the immediate containment and control of the spill, the clean-up procedures to be initiated immediately and any other action to be taken to mitigate the potential environmental damage while awaiting additional assistance, and,
 - e. the name and the telephone number of the Contractor's representative responsible for preparing, implementing, directing and supervising the contingency plan
2. The Contractor shall submit for the Engineer's review, a copy of the Spills Response plan and shall make the appropriate changes to it based upon the comments received.
3. In the event of a spill or other emission of a pollutant caused by the execution of the Work into the natural environment, the Contractor shall immediately notify the

following of the spill, of the circumstances thereof, and of the action taken or intended to be taken with respect thereto:

- a. The Michigan Department of Environmental Quality
 - b. The Owner
 - c. The owner of the pollutant, if known,
 - d. The person having control of the pollutant, if known,
 - e. The Engineer
4. The Contractor shall make the necessary allowances to ensure the immediate availability of the products with which to affect temporary repair to broken pipelines and other services so the spill or other emission of a pollutant is immediately controlled and stopped and to mitigate the damages. The Contractor shall do everything practicable to restore the natural environment.
5. The Contractor shall prepare a written report of the spill, and the spill event is to be recorded in the Contractor's log book. The report must contain the following information, at a minimum:
- a. Date and time spill occurred.
 - b. Estimated volume of spill.
 - c. Duration of the spill.
 - d. Cause and discovery of the spill.
 - e. Cleanup and recovery measures taken.
 - f. Name of hauler or outside contractors called in to assist with cleanup and recovery measures.
 - g. Personnel on the scene.
 - h. Names of parties and agencies notified and the date and time of notification of each.
 - i. Steps to be taken to prevent a reoccurrence of the spill.

C. Fire Contingency Plan

1. The Contractor shall develop and submit a Fire Contingency Plan to ensure a rapid response to a fire thereby minimizing the threat to worker and public safety, and the environment.

2. The plan must include, but is not limited to an explanation of the purpose of the plan and when the plan is triggered, an explanation of relevant roles and responsibilities, and accountability for implementing the plan, and provision of fire prevention training and equipment for implementing the plan.

1.16 NOTIFICATIONS:

- A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or local requirements. The Contractor shall, after receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.17 IMPLEMENTATION:

- A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with this provision and administration of the environmental pollution control program.
- B. Remove temporary environmental control features, when accepted by the Engineer, and incorporate permanent control features into the project at the earliest practicable time.
- C. Implementation of the Contingency and Emergency Response Plans
 1. The responsibility for implementing the Contingency and Emergency Response Plans shall lie with the Contractor. Specific responsibilities include:
 - a. Reviewing the Contingency Plans and Emergency Response Plans and identifying any issues / concerns and providing suggested changes / updates;
 - b. Ensuring that all construction staff are trained in Contingency Plan Implementation and Emergency Response Techniques and that they have the appropriate equipment on hand;
 - c. Providing advice to construction staff on proper emergency response procedures;
 - d. Auditing the Contractor's response to events resulting in the activation of its Contingency Plans and Emergency Response Plans;

- e. Initiating actions to correct any response deficiencies identified through the audit process and reporting it;
- f. Maintaining emergency response records for review by the Engineer and the appropriate regulatory agencies.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 42 13

DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. General: Basic Contract definitions are included in the General Conditions.
- C. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- D. "Directed": A command or instruction by Engineer. Other terms including "requested," "ordered," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- E. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- F. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- G. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- H. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- I. "Provide": Furnish and install, complete and ready for the intended use.
- J. "Project Site": Space available for performing construction activities.
- K. "Elevation": The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

- L. "Rock": The word "rock," wherever used as the name of an excavated material or material to be excavated, shall mean only boulders and pieces of concrete or masonry exceeding 1 cubic yard in volume, or solid ledge rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as "rock."

- M. "Earth": The word "earth", wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as above defined.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 43 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section covers Quality Assurance and Quality Control requirements for this contract.
- B. The Contractor is responsible for controlling the quality of work, including work of its subcontractors, and suppliers and for assuring the quality specified in the Technical Specifications is achieved.
- C. Refer to the General Conditions Article 6 - Contractor's Responsibilities.

1.2 SUMMARY:

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Engineer or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:

1.3 REFERENCES:

- A. American Society for Testing and Materials (ASTM):
 - 1. E329: Standard Specification for Agencies Engaged in Construction Inspection and/or Testing

1.4 DEFINITIONS:

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- D. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- E. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- G. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- H. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.5 CONFLICTING REQUIREMENTS:

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Engineer for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum

within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.

1.6 SUBMITTALS:

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN:

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Engineer. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- C. Monitoring and Documentation: Maintain testing and inspection reports including log of accepted and rejected results. Include work Engineer has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS:

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections.
- B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE:

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.
- D. Codes and Standards: Refer to General Conditions Article 3 - Contract Documents: Intent, Amending, Reuse of the General Conditions.
- E. Copies of applicable referenced standards are not included in the Contract Documents. Where copies of standards are needed by the Contractor for superintendence and quality control of the work, the Contractor shall obtain a copy or copies directly from the publication source and maintain at the jobsite, available to the Contractor's personnel, subcontractors, and Engineer.
- F. Quality of Materials: Unless otherwise specified, all materials furnished for permanent installation in the Work shall conform to applicable standards and specifications and shall be new, unused, and free from defects and imperfections, when installed or otherwise incorporated in the Work. The Contractor shall not use material and equipment for any purpose other than that intended or specified unless the Engineer authorizes such use.
- G. Where so specified, products or workmanship shall also conform to the additional performance requirements included within the Contract Documents to establish a higher or more stringent standard or quality than that required by the referenced standard.

1.10 MATERIALS:

- A. The Contractor shall maintain control over procurement sources to ensure that materials conform to specified requirements in the Contract Documents.
- B. The Contractor shall comply with manufacturer's printed instructions regarding all facets of materials storage and installation. Should circumstances occur where the contract documents are more stringent than the manufacturer's printed instructions, the Contractor shall comply with the specifications. In cases where the manufacturer's printed instructions are more stringent than the contract documents, the Contractor shall advise the Engineer of the disparity and conform to the manufacturer's printed instructions. In either case, the Contractor is to apply the more stringent specification or recommendation, unless accepted otherwise by the Engineer.

1.11 QUALITY CONTROL:

- A. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

2. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
 3. Comply with manufacturers' instructions, including each step in sequence.
 4. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
 5. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
 6. Perform Work by persons qualified to produce required and specified quality.
 7. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 8. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 9. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 10. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- C. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 QUALITY CONTROL:

- A. Quality control is the responsibility of the Contractor, and the Contractor shall maintain control over construction and installation processes to assure compliance with specified requirements.

- B. Certifications for personnel, procedures, and equipment associated with special processes shall be maintained by the Contractor, available for inspection by the Engineer. Copies shall be made available to the Engineer upon request.
- C. Means and methods of construction and installation processes are the responsibility of the Contractor, and at no time is it the intent of the Engineer to supersede or void that responsibility.

3.2 REPAIR AND PROTECTION:

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SCOPE OF WORK:

- A. The Contractor shall provide all temporary facilities for the proper completion of the work, as required and as specified.

1.2 USE CHARGES:

- A. General: Costs for installation, removal and use of temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Engineer and subcontractors, Owner, testing agencies, and authorities having jurisdiction.

- B. Sanitary Service:

1. The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the site of the Work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the Work in suitable numbers and at such points and in such manner as may be required by pertinent health and safety regulations.
2. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the Owner, or on adjacent property.

- a. The Contractor shall not use the Owner's sanitary facilities.

- C. Water Service from Existing System:

1. Contractor shall coordinate with, and receive written approval from the Owner or owner of the existing water distribution system before utilizing any private or public water sources.
2. Contractor is required to complete all permitting and pay all fees associated with the use of water from public or private sources.
3. Upon approval, the owner of the water system shall provide reasonable quantities of water at the then existing pressure from a mutually convenient hydrant of the water distribution system. The Contractor shall furnish all necessary pipe or hose extensions to conduct the water to the points of use and shall exercise due care not

to waste water. The Contractor shall not contaminate the water supply and shall comply with all applicable regulations and code requirements.

4. The Owner reserves the right to limit, suspend, or terminate the supply of water as set forth above should it consider such action to be necessary on account of damage to the distribution system, the necessity of conserving water, or other emergency. In this event, the Contractor shall obtain water from some other approved source, at his own expense.

1.3 TRAFFIC REGULATION:

A. Signs, Signals, And Devices:

1. Post mounted traffic control and informational signs as necessary to direct traffic around construction areas.
2. Maintain traffic cones, drums, and other static barricades as necessary to direct traffic around construction areas.
3. Flagperson Equipment: As required by local jurisdictions.

B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

D. Haul Routes:

1. Confine construction traffic to designated haul routes.
2. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

E. Traffic Signs and Signals:

1. Provide signs approaches to site and on site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.
3. Relocate as Work progresses, to maintain effective traffic control.

F. Removal:

1. Remove equipment and devices when no longer required.

2. Repair damage caused by installation.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES:

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. The Contractor may maintain a temporary field office near the work for his own use during the period of construction at which readily accessible copies of all contract documents shall be kept. The office shall be located where it will not interfere with the progress of the work. In charge of this office there shall be a competent superintendent of the Contractor as specified under "Supervision of Work" in the AGREEMENT.
- C. Temporary Storage Yards: The Contractor shall construct temporary storage yards for storage of Products that are not subject to damage by weather conditions. Contractor shall not use any areas, including local streets, parking lots, or abandoned properties for storage without receiving written authorization and consent from the City or property owner. Contractor is responsible for completing all applications, associated administrative tasks, and payment of all fees, including permits and insurance, required to obtain access and utilize the storage area.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL:

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

3.2 TEMPORARY UTILITY INSTALLATION:

- A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- B. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
- C. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic controls.

3.3 SUPPORT FACILITIES INSTALLATION:

- A. Permanent Roads and Paved Areas: Maintain roads and paved areas adequate for construction operations and local vehicular traffic.
 - 1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust. Do not use chemical means of dust control without prior written approval from the Engineer. The use of petroleum products will not be allowed at any time.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - 3. Unless described and approved under a Traffic Control Plan (TCP), conduct operations on the site so that the use of any roads by vehicles employed under this Contract will not restrict pedestrian and vehicular traffic thereon nor hinder the use of such facilities.
 - 4. All roads within the work area may be used simultaneously by vehicles and pedestrians. The speed limit of 15 mph applies throughout the work areas, including the access roads and parking lots. Failure to comply with speed limit or to operate vehicles safely will result in possible removal of the staff from the site.
- C. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION:

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to local properties.
 - D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
 - E. Tree and Plant Protection: Protect trees and vegetation from damage during construction operations. Protect tree root systems from damage, flooding, and erosion.
 - F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- 3.5 OPERATION, TERMINATION, AND REMOVAL:
- A. Maintenance: Maintain facilities in good operating condition until removal.
 - B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

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SECTION 01 57 13

EROSION CONTROL, SEDIMENTATION AND CONTAINMENT OF CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide all work and take all measures necessary to control soil erosion resulting from construction operations, prevent flow of sediment from construction site, and contain construction materials (including excavation and backfill) within protected working area as to prevent damage to any stream or wetlands.

1.2 REFERENCES:

- A. United States Environmental Protection Agency (USEPA):
 - 1. Guidelines for Erosion and Sediment Control, Planning and Implementation.
 - 2. Processes, Procedures and Methods to Control Pollution Resulting from all Construction Activity.

1.3 SUBMITTALS:

- A. Provide submittals in accordance with Section 01 33 00.
- B. Two weeks prior to the start of the work, submit to Engineer, for review, a plan with detailed sketches showing the proposed methods to be used for controlling erosion during construction.

1.4 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Use acceptable procedures, including use of sediment barriers and inlet sediment traps.
- C. Engineer has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct immediate permanent or temporary pollution control measures to prevent contamination of any stream or wetlands, including construction of temporary berms, dikes, dams, sediment basins, sediment traps, slope drains, and use of temporary mulches, mats, or other control devices or methods to control erosion.

PART 2 - PRODUCTS

2.1 BALES:

- A. Hay or straw or other suitable material acceptable to Engineer.

PART 3 - EXECUTION

3.1 GENERAL:

- A. Do not discharge chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste into or alongside any body of water, storm sewers, or into natural or man-made channels.
- B. Design erosion and sediment controls to handle peak runoff resulting from storm events.
- C. The Contractor shall be responsible for inspecting and maintaining these control measures to ensure their proper function and adequate sediment storage at all times. The Contractor shall remove sediment once it reaches 50 percent of the capacity of the structure. Sediment collected shall be disposed of offsite at the Contractor's cost.

3.2 INSTALLATION:

- A. Install baled hay or straw erosion checks in all locations as directed, surrounding base of all deposits of stored excavated material outside of disturbed area, and where directed by the Engineer.
- B. Construct diversions to intercept and divert runoff water from critical areas.
- C. Discharge silt-laden water from excavations onto filter fabric mat and/or baled hay or straw sediment traps to ensure that only sediment-free water is returned to watercourses.
- D. Do not dump spoiled material into any streams, wetlands, surface waters, or unspecified locations.
- E. Prevent indiscriminate, arbitrary, or capricious operation of equipment in streams, wetlands or surface waters.
- F. Do not pump silt-laden water from trenches or excavations into surface waters, streams, wetlands, storm sewers, or natural or man-made channels leading thereto.
- G. Prevent damage to vegetation adjacent to or outside of construction area limits.
- H. Do not dispose of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in streams, wet-lands, surface waters, storm sewers, or natural or man-made channels leading thereto, or unspecified locations.

- I. Do not alter flow line of any stream unless indicated or specified.

END OF SECTION

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SECTION 01 61 00

CONTROL OF MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.2 DEFINITIONS:

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and accepted through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

1.3 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.4 DELIVERY STORAGE AND HANDLING:

- A. Contractor shall arrange deliveries of materials in accordance with construction Progress Schedule, coordinate to avoid conflict with Work and conditions at site.
- B. Comply with the requirements of Section 01 66 10.
- C. Provide equipment and personnel to handle materials by methods recommended by manufacturer to prevent soiling or damage to materials or their packaging.

- D. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- E. Owner assumes no responsibility for damage or loss due to storage of materials.
- F. Interior Storage:
 - 1. Store with seals and labels intact and legible.
 - 2. Store materials subject to damage by elements in weathertight enclosures.
 - 3. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- G. Exterior Storage:
 - 1. Store materials above ground, on blocking or skids, to prevent soiling or staining. Cover materials subject to deterioration with impervious sheet coverings. Provide ventilation to avoid condensation.
 - 2. Store loose granular materials in well-drained area on solid surfaces to prevent mixing with foreign matter.
 - 3. Store materials such as reinforcing steel on pallets or racks, off ground.
- H. Inspection and Maintenance:
 - 1. Arrange storage to provide easy access for inspection, maintenance, and inventory.
 - 2. Make periodic inspections of stored materials to ensure materials maintained under specified conditions are free from damage or deterioration, and coverings are in-place and in condition to provide required protection.
- I. Contractor shall assume responsibility for protection of completed construction and repair and restore damage to completed Work equal to original condition.

1.5 WARRANTY:

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

1.6 PRODUCTS:

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

1.7 ACCEPTANCE OF MATERIALS:

- A. Unless otherwise specified, only new materials shall be incorporated in the work. All materials furnished by the Contractor shall be subject to the inspection and acceptance of the Engineer. No material shall be delivered to the work without prior acceptance of the Engineer.
- B. As specified in Section 01 33 00, the Contractor shall submit to the Engineer data relating to materials he proposes to furnish for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product and to form an opinion as to its conformity to the specifications.
- C. Any delay of acceptance resulting from the Contractor's failure to submit data promptly shall not be used as a basis of a claim against the Owner or the Engineer.
- D. The materials used on the work shall correspond to the accepted submittals.

1.8 REUSE OF EXISTING MATERIAL:

- A. Except as specifically indicated or specified, do not reuse existing materials in new Work.

1.9 MANUFACTURER'S INSTRUCTIONS:

- A. Installation of materials shall comply with manufacturer's instructions.
- B. Handle, store, install, connect, and adjust materials in accordance with manufacturer's written instructions and in conformance with Specifications.
 - 1. If Site conditions or specified requirements conflict with manufacturer's instructions, consult Engineer for further instructions. Do not proceed with Work without written instructions.

1.10 GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS:

- A. The requirements of this Paragraph shall constitute the standards for the material specified herein. Should these requirements conflict with the Supplier's recommendations or in any way be less stringent than the Supplier's requirements, they shall be superseded by the Supplier's requirements.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Material Incorporated into Work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type, and quality specified or as accepted by Submittal.

B. Do not use materials for purpose other than for which it is designed or specified.

PART 3 - EXECUTION

3.1 CLOSEOUT ACTIVITIES:

A. Provide in accordance with Section 01 77 00.

END OF SECTION

SECTION 01 66 10

DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.1 GENERAL:

- A. This Section specifies the general requirements for the delivery handling, storage and protection for all items required in the construction of the work. Specific requirements, if any, are specified with the related item.

1.2 TRANSPORTATION AND DELIVERY:

- A. Transport and handle items in accordance with manufacturer's printed instructions.
- B. Schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment or materials be delivered to the site more than one month prior to installation without written authorization from the Engineer.
- C. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
- D. Deliver products to the site in manufacturer's original sealed containers or other packing systems, complete with instructions for handling, storing, unpacking, protecting and installing.
- E. Assume responsibility for material before unloading from carrier at site.
- F. All items delivered to the site shall be unloaded and placed in a manner which will not hamper the Contractor's normal construction operation or those of subcontractors and other contractors and will not interfere with the flow of necessary traffic.
- G. Provide equipment and personnel to unload all items delivered to the site.
- H. Promptly inspect shipment to assure that products comply with requirements, quantities are correct, and items are undamaged. For items furnished by Owner, perform inspection in the presence of the Engineer. Notify Engineer verbally, and in writing, of any problems.
- I. Pay all demurrage charges if failed to promptly unload items.

1.3 STORAGE AND PROTECTION:

- A. Store and protect products and equipment in accordance with the manufacturer's instructions, with seals and labels intact and legible. Storage instruction shall be studied

by the Contractor and reviewed with the Engineer. Instructions shall be carefully followed and a written record of this kept by the Contractor for each product.

- B. Arrange storage of products and equipment to permit access for inspection. Periodically inspect to make sure products are undamaged and are maintained under specified conditions.
- C. Store loose granular materials on solid flat surface in a well-drained area. Prevent mixing with foreign matter.
- D. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous and reinforcing steel shall be stored off the ground or otherwise to prevent accumulation of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 74 23

CLEANING UP

PART 1 - GENERAL

1.1 SUMMARY:

- A. Execute cleaning during progress of Work and at completion of Work.
- B. Refer to specification sections for specific cleaning for Products or Work.

1.2 DISPOSAL REQUIREMENTS:

- A. Conduct cleaning and disposal operations to comply with local codes, ordinances, regulations, and anti-pollution laws. Do not burn or bury rubbish or waste materials on Project site. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION:

- A. During execution of work, clean site, adjacent properties, and public access roads and dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish. Unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. Cover or wet excavated material leaving and arriving at the site to prevent blowing dust. Clean the public access roads to the site of any material falling from the haul trucks.
- D. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc., shall, upon completion of the work, be left in a clean and neat condition.

- E. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.
- F. Provide on-site containers for collection and removal of waste materials, debris, and rubbish in accordance with applicable regulations.

3.2 FINAL CLEANING:

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Leave Project area clean and ready for occupancy.

END OF SECTION

SECTION 01 77 00
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Final cleaning.
 - 4. Repair of the Work.

1.3 SUBSTANTIAL COMPLETION PROCEDURES:

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Submit closeout submittals specified in Contract Documents, including project record documents, final completion construction photographic documentation, damage or settlement surveys, and similar final record information.
 - 2. Submit closeout submittals specified in Contract Document Sections, including specific warranties, workmanship bonds, and similar documents.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Terminate and remove temporary facilities from Project site, along with construction tools, equipment and materials.

2. Complete final cleaning and restoration requirements.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.4 PROJECT RECORDS DOCUMENTS

A. The Contractor shall record any actual revisions to the Work and maintain one set of the following Project Record Documents on Site:

1. Contract Drawings, Specifications, and Addenda.
2. Change Orders, Field Orders, and other written notices.
3. Shop drawings, Product data, and samples.
4. Project Record Drawings.

B. The Contractor shall record information on the Project Record Documents concurrent with construction progress and store these documents separately from the documents used for construction.

1. The Contractor shall note any changes made during construction by any of the Contractor's forces or those of any Subcontractors.
2. Changes in the Work caused by Site conditions, or originated by the Owner, the Engineer, the Contractor, or Subcontractors and by addenda, supplemental drawings, Site instructions, supplementary instructions, change orders, correspondence, and directions of any regulatory authorities.

1.5 FINAL COMPLETION PROCEDURES:

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST):

- A. Engineer will provide a punchlist of outstanding work items to be addressed by Contractor prior to final payment and issuance of a Notice of Substantial Completion. The punchlist will identify each area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 REPAIR OF THE WORK:

- A. Complete restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction, including replacement of defective materials. Restore areas damaged during construction.

END OF SECTION

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SECTION 03 10 00
CONCRETE FORMWORK

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide design and furnish materials for fabricating, erecting and removing formwork, falsework and shoring for cast-in-place concrete as indicated and in compliance with Contract Documents.
- B. Use formwork to cast all cast-in-place concrete structures.

1.2 REFERENCES:

- A. American Concrete Institute (ACI):
 - 1. 117/117R: Standard Tolerances for Concrete Construction and Materials.
 - 2. 309.2R: Identification and Control of Visible Effects of Consolidation on Formed Concrete Surfaces.
 - 3. 318/318R: Building Code Requirements for Structural Concrete and Commentary.
 - 4. 347: Guide to Formwork for Concrete.
- B. Engineered Wood Association (APA)
- C. National Institute of Product Standards and Technology
 - 1. Voluntary Product Standard PS 1 Structural Plywood

1.3 DESIGN REQUIREMENTS:

- A. Design formwork in conformance with methodology of ACI 347R for anticipated loads, lateral pressures, depth of concrete placement and rate of concrete placement. Design shall consider any special requirements due to the use of self-consolidating, plasticized and/or retarded set concrete. All forms and shoring shall be designed at the contractor's expense.

1.4 QUALIFICATIONS:

- A. Formwork Designer: Formwork, falsework, and shoring design shall be by an engineer licensed in the State of Michigan where the Project is located.

1.5 SUBMITTALS:

- A. Submit product data for form ties, spreaders, chamfer strips, form coatings, and bond breakers.

1.6 QUALITY ASSURANCE:

- A. Comply with requirements in section 01 43 00 and as specified.
- B. Design of Formwork:
 - 1. The Contractor shall assume responsibility for the design, engineering and construction of formwork. Forms shall be designed to produce concrete members identical in shape, lines and dimensions to members shown on the Contract Documents.
 - 2. When high range water reducer (superplasticizer) is used in concrete mix or when self consolidated concrete is specified, forms shall be designed for full hydrostatic pressure per ACI 347.
 - 3. The formwork shall be designed for the loads and lateral pressures in accordance with ACI 347 and wind loads as specified by the local building code.
 - 4. Construction and contraction joints shall be provided.
 - 5. Formwork shall be designed to be readily removable without impact, shock, or damage to 'green' concrete surfaces and adjacent materials.
- C. Unless otherwise specified herein, formwork shall be constructed so that the concrete surfaces will conform to the tolerance limits as given in ACI 117.
- D. Materials, fabrications and workmanship found defective shall be promptly removed and replaced and new acceptable work shall be provided in accordance with Contract requirements at no additional cost to the owner.

1.7 DELIVERY, STORAGE AND HANDLING:

- A. Comply with the requirements in section 01 66 10.
- B. Materials shall be delivered to the site in an undamaged condition and at such intervals as will avoid delay in the work.
- C. Material shall be stored and protected in a clean, properly drained location. Material shall be kept off the ground under a weather-tight covering permitting good air circulation. Formwork materials shall be stored on dry wood sleepers, pallets, platforms or other appropriate supports which have slope for positive drainage. Materials shall be protected from distortion, excessive stresses, corrosion and other damage. Materials

shall not be stored on the structure in a manner that might cause distortion or damage to the supporting structure.

PART 2 - PRODUCTS

2.1 LUMBER:

- A. Lumber used in form construction shall be Southern Yellow Pine, No. 2, S4S, Standard Grade Rules Southern Pine Inspection Bureau. Boards shall be 6 inches or more in width.

2.3 PLYWOOD:

- A. Only grade-marked plywood conforming to APA shall be provided.
- B. Plywood used in form construction shall be Grade B-B, Class 1 plyform, mill-oiled, and sanded on both sides in conformance with U.S. Product Standard PS 1 Structural Plywood.
- C. Thickness shall be sized to maintain alignment and surface smoothness, but not less than 5/8-inch thick.

2.4 STEEL FORMS:

- A. Commercial grade sheets not less than 16 gage shall be provided.
- C. Stock material that is free from warps, bends, kinks, cracks, and rust or other matter that could stain the concrete shall be provided.

2.5 FORM MATERIAL LOCATIONS:

- A. Materials: Plywood, hard plastic finished plywood, overlaid waterproof particleboard, or steel in new and undamaged condition, of sufficient strength and surface smoothness to produce specified finish.

2.6 FORM TIES:

- A. Locate form ties on exposed surfaces in a uniform pattern. Place form ties so they remain embedded in the concrete except for a removable portion at each end. Form ties shall have conical or spherical type inserts with a maximum diameter of 1 inch. Construct form ties so that no metal is within 1-1/2 inch of the concrete surface when the forms, inserts, and tie ends are removed. Do not use wire ties. Ties shall withstand all pressures and maintain forms within acceptable deflection limits.
- B. Flat bar ties for panel forms shall have plastic or rubber inserts having a minimum depth of 1-1/2 inch and sufficient dimensions to permit patching of the tie hole.]

- C. Tapered form ties shall be tapered through-bolts or through-bolts that utilize a removable tapered sleeve.
- D. Wire ties are not permitted.

2.7 FORM RELEASE AGENT:

- A. Form release agent shall not bond with, stain, or adversely affect concrete surfaces and shall not impair subsequent treatments of concrete surfaces when applied to forms. A ready-to-use water-based material formulated to reduce or eliminate surface imperfections and containing no mineral oil or organic solvents.
- B. Manufacturers and Products:
 - 1. BASF, Shakopee, MN; MBT, Rheofinish 211.
 - 2. Cresset Chemical Company; Crete-Lease 20-VOC.
 - 3. Unitex Chemicals; Farm Fresh.
 - 4. Magic Kote: Symons Corporation, Des Plaines, IL

PART 3 - EXECUTION

3.1 FORM TOLERANCES:

- A. Comply with the requirements of ACI 117 for tolerances for formed surfaces.
- B. Tolerances are not cumulative
- C. Failure of the forms to produce the specified concrete surface and surface tolerance shall be grounds for rejection of the concrete work. Rejected work shall be repaired or replaced at no additional cost to the Owner.

3.2 PREPARATION:

- A. Clean form surfaces to be in contact with concrete or foreign material prior to installation. Tape, gasket, plug, and/or caulk joints, gaps, and apertures in forms so that the joint will remain watertight and withstand placing pressures without bulging outward or creating surface irregularities.
- B. Coat form surfaces in contact with concrete with a form release agent prior to form installation.
- C. Steel Forms: Apply form release agent to steel forms as soon as they are cleaned to prevent discoloration of concrete from rust.

3.3 ERECTION AND INSTALLATION:

- A. Forms shall be constructed in accordance with ACI 347 to required dimensions, plumb, straight and mortar tight, and all joints and seams shall be made mortar-tight. Forms shall be substantial, properly braced, and tied together to maintain position and shape and to resist all pressures to which they may be subject. Unless otherwise indicated on the Contract Documents, formwork shall be constructed so that the concrete surfaces will conform to the tolerance limits in ACI 117 and herein specified.
- B. Provide means for holding adjacent edges and ends of form panels tight and in accurate alignment to prevent the formation of ridges, fins, offsets, or similar surface defects in the finished concrete. Forms shall be tight and shall prevent the loss of mortar and fines during placing and vibration of concrete.
- C. Provide means for removing forms without injury to the surface of finished concrete.
- D. Do not embed any form-tying device or part thereof other than metal in the concrete.
- E. Locate large end of taper tie on the "wet" side of the wall.
- F. Use only form or form-tying methods that do not cause spalling of the concrete upon form stripping or tie removal.

3.4 PROTECTION:

- A. During installation, the forms shall not be used as a storage platform nor as a working platform until the forms have been permanently fastened in position.

3.5 REMOVAL OF FORMS:

- A. Forms shall be removed in accordance with ACI 347 recommendations without damage to concrete and in a manner to ensure complete safety to the structure. Forms, form ties and bracing shall not be removed without specific permission of the Contractor's Registered Professional Engineer.
- C. Removal times will be increased if the concrete temperature following placement is permitted to drop below 50 degrees F.
- D. Do not remove supports and reshore.

3.6 CLOSEOUT:ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

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SECTION 03 15 00

CONCRETE JOINTS AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section describes materials, testing, and installation of concrete joints and accessories as specified.

1.2 REFERENCES:

- A. ASTM International (ASTM):
 - 1. D994: Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
 - 2. D1752: Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

1.3 SUBMITTALS:

- A. Submit following shop drawings in accordance with 01 33 00.
 - 1. Manufacturer's printed data and application instructions for specified materials and locations where materials are to be used.

1.4 QUALITY ASSURANCE:

- A. Comply with requirements in section 01 43 00 and as specified.
- B. Do not add, relocate or omit joints without written permission from the Engineer.
- C. Reject material exceeding expiration date for use.
- D. Clean concrete surfaces to receive expansion joint compound in accordance with the printed instructions of the joint compound manufacturer.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Comply with the requirements in section 01 66 10.
- B. Transport, handle and deliver materials to the job site in the manufacturer's sealed bags, unopened containers or banded pallets.
- C. Store materials off the ground on a platform or skids and protect with covers from snow, rain and ground splatter.

- D. Store expansion joint compounds in a dry location where they cannot freeze.

PART 2 - PRODUCTS

2.1 PREMOLDED JOINT FILLER FOR PAVEMENTS AND SLABS:

- A. Joint filler shall be preformed, nonextruded type constructed of closed-cell neoprene conforming to ASTM D1752, Type I
- B. Bituminous-type preformed expansion joint filler conforming to ASTM D994.

PART 3 - EXECUTION

3.1 JOINTS:

- A. Refer to Section 32 16 00.

3.2 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide cast-in-place concrete as indicated and in compliance with Contract Documents.

1.2 REFERENCES:

A. American Concrete Institute (ACI):

1. 211.1: Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
2. 214R: Recommended Practice for Evaluation of Strength Test Results of Concrete
3. 304R: Guide for Measuring, Mixing, Transporting and Placing Concrete
4. 305R: Hot Weather Concreting
5. 306R: Cold Weather Concreting
6. 308: Standard Practice for Curing Concrete
7. 309R: Guide for Consolidation of Concrete
8. 311.4R: Guide for Concrete Inspection

B. ASTM International (ASTM):

1. C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field
2. C33: Standard Specification for Concrete Aggregates
3. C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
4. C40: Standard Test Method for Organic Impurities in Fine Aggregates for Concrete
5. C87: Standard Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
6. C94: Standard Specification for Ready-Mixed Concrete

7. C136: Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
8. C138: Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
9. C143: Standard Test Method for Slump of Hydraulic Cement Concrete
10. C150: Standard Specification for Portland Cement
11. C157: Standard Test Method for Length Change of Hardened Hydraulic Cement, Mortar and Concrete
12. C171: Standard Specification for Sheet Materials for Curing Concrete
13. C172: Standard Practice for Sampling Freshly Mixed Concrete
14. C192: Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
15. C231: Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
16. C260: Standard Specification for Air-Entraining Admixtures for Concrete
17. C289: Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
18. C311: Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete
19. C494: Standard Specification for Chemical Admixtures for Concrete
20. C595: Standard Specification for Blended Hydraulic Cements
21. C618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
22. C1064: Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete
23. D75: Standard Practice for Sampling Aggregates
24. E329: Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction

C. American Association of State Highway and Transportation Officials (AASHTO):

1. M182: Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats

1.3 SUBMITTALS:

- A. Submit the following in accordance with Section 01 33 00.
- B. Product Data:
 - 1. Manufacturer's specifications and instructions including Material Safety Data Sheets (MSDS) for admixtures and curing materials. Manufacturer's certification of compatibility of all admixtures.
- C. Shop Drawings:
 - 1. Provide certificate that cement used complies with ASTM C150 and these specifications.
 - 2. Provide certificates that aggregates comply with ASTM C33. Submit gradation analysis with concrete mix designs.
 - 3. Provide certificate of compliance with these specifications from the manufacturer of the concrete admixtures.
 - 4. For each formulation of concrete proposed, prepare mix designs in accordance with ACI 318, Chapters 4 and 5, except as modified herein. Submit mix design for review by the Engineer at least 15 days before placing of any concrete.
 - 5. Proposed special procedures for protection of concrete under wet weather placement conditions.
 - 6. Proposed special procedures for protection and curing of concrete under hot and cold weather conditions.
- D. Field Quality Control Submittals
 - 1. Provide delivery tickets for ready-mix concrete or weighmasters certificate per ASTM C94, including weights of cement and each size aggregate and amount of water added at the plant and record of pours. Record the amount of water added on the job on the delivery ticket. Water added at the plant shall account for moisture in both coarse and fine aggregate.

1.4 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01 43 00.
- B. Unless otherwise indicated, materials, workmanship, and practices shall conform to the following standards:
 - 1. ACI 318, "Building Code Requirements for Reinforced Concrete."

- C. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions govern.
- D. Concrete not meeting the minimum specified 28-day design strength shall be cause for rejection and removal from the work.
- E. Perform concrete work in conformance with ACI 301 unless otherwise specified.
- F. Do not use admixtures, including calcium chloride, which will cause accelerated setting of cement in concrete.
- G. Do not place concrete until design mix, material tests and trial concrete batch mix compression test results are accepted by the Engineer.
- H. Employ an independent testing laboratory, acceptable to the Engineer, to develop concrete mix designs and testing. Concrete testing shall be performed by an ACI Concrete Field Technician, Grade I or equivalent.
- I. Methods of Sampling and Testing:
 - 1. Fresh Concrete Sampling: ASTM C172
 - 2. Specimen Preparation: ASTM C31
 - 3. Compressive Strength: ASTM C39
 - 4. Air Content: ASTM C231
 - 5. Slump: ASTM C143
 - 6. Temperature: ASTM C1064
 - 7. Unit Weight: ASTM C138
- J. Hot weather concrete to conform to ACI 305R and as specified herein.
- K. Cold weather concrete to conform to ACI 306R and as specified herein.
- L. Reject concrete delivered to job site that exceeds the time limit or temperature limitations specified.
- M. Do not place concrete in water or on frozen or uncompacted ground.
- N. Workability
 - 1. Concrete shall be of such consistency and composition that it can be worked readily into the forms and around the reinforcement without excessive vibrating and without permitting the materials to segregate or free water to collect on the surface.

2. Adjust the proportions to secure a plastic, cohesive mixture, and one that is within the specified slump range.
3. To avoid unnecessary changes in consistency, obtain the aggregate from a source with uniform quality, moisture content, and grading. Handle materials to minimize variations in moisture content that would interfere with production of concrete of the established degree of uniformity and slump.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Provide in conformance with Section 01 66 10 and as specified herein.
- B. Deliver concrete to discharge locations in watertight agitator or mixer trucks without altering the specified properties of water-cement ratio, slump, air entrainment, temperature and homogeneity.
- C. Reject concrete not conforming to specification, unsuitable for placement, exceeding the time or temperature limitations or not having a complete delivery batch ticket.

1.6 SITE CONDITIONS:

- A. Do not place concrete until conditions and facilities for making and curing control test specimens are in compliance with ASTM C 31 and as specified herein.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Cement:

1. Portland Cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type IP (MS).
2. Use only one brand of cement in any individual structure. Use no cement that has become damaged, partially set, lumpy, or caked. Reject the entire contents of the sack or container that contains such cement. Use no salvaged or reclaimed cement.
3. Maximum tricalcium aluminate shall not exceed 8 percent. The maximum percent alkalis shall not exceed 0.6 percent.

B. Fly Ash:

1. Provide fly ash conforming to the following requirements:
 - a. Class F fly ash conforming to ASTM C 618 for chemical and physical properties.
 - b. Supplemental requirements in percent:

- (1) Maximum carbon content: 3 percent
- (2) Maximum sulfur trioxide (SO₃) content: 4 percent
- (3) Maximum loss on ignition: 3 percent
- (4) Maximum water requirement (as a percent of control): 100 percent
- (5) Fineness, maximum retained on No. 325 sieve: 25 percent

C. Fine Aggregates:

1. Clean, sharp, natural sand conforming to requirements of ASTM C33 with a fineness modulus between 2.50 and 3.0.

D. Coarse Aggregate:

1. Well graded crushed stone, natural rock conforming to requirements of ASTM C33.
2. Limit deleterious substances in accordance with ASTM C33, Table 3, Severe Weathering Regions, limit clay lumps not to exceed 1.0 percent by weight, and limit loss when tested for soundness using magnesium sulfate to 12 percent.

E. Water and Ice:

1. Use water and ice free from injurious amounts of oil, acid, alkali, salt, organic matter or other deleterious substances and conforms to requirements of ASTM C94.
2. Water shall not contain more than 500 mg/L of chlorides or more than 500 mg/L of sulfate.
3. Heat or cool water to obtain concrete temperatures specified, and in conformance with ACI 305R and ACI 306R.

F. Concrete Admixtures:

1. Maintain compressive strength and maximum water-cement ratios specified in Table 03 30 00 when using admixtures. Include admixtures in solution form in the water-cement ratio calculations.
2. Do not use any admixture that contains chlorides or other corrosive elements in any concrete. Use admixtures in compliance with the manufacturer's printed instructions. The manufacturer shall certify the compatibility of multiple admixtures used in the same mix. Do not use admixtures in greater dosages than recommended by manufacturer.

3. Air Entrainment:

- a. Class A concrete; an air-entraining admixture conforming to ASTM C260.
 - b. Products:
 - (1) BASF Corporation; MB-AE 90.
 - (2) Sika Corporation, AER.
 - c. Adjust the admixture content to accommodate fly ash or pozzolan requirements, and other admixtures when used, in order to obtain the specified air content.
4. Water Reducing:
- a. Class A concrete; a water-reducing admixture conforming to ASTM C494, Type A and compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations.
 - b. Products:
 - (1) BASF Corporation; Polyheed Series
 - (2) Sika Corporation, Plastocrete 161
 - (3) WR Grace & Co.;Darex II-AEA
 - (4) Euclid Chemical Company; Eucon NW
5. Water Reducing and Retarding:
- a. Class A concrete; a water-reducing and retarding admixture conforming to ASTM C494, Type D and compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations.
 - b. Products:
 - (1) BASF Corporation; Pozzolith Series
 - (2) Sika Corporation; Plastiment
 - (3) Euclid Chemical company; Eucon WR-91
6. High-Range Water-Reducing Admixture (Superplasticizer):
- a. Class A concrete; a High-Range water-reducing admixture conforming to ASTM C494, Type F or ASTM C1017, Type I.

b. Products:

- (1) BASF Corporation; Glenium Series
- (2) WR Grace & Co.; Daracem 100
- (3) Euclid Chemical company; Eucon SPC

G. Burlap Mats:

1. Conform to AASHTO M182.

2.2 MIXES:

A. Conform to ASTM C94, except as modified by these specifications.

B. Air content as determined by ASTM C231:

1. 5 +/- 1-1/2 percent for concrete using 1-1/2 inch maximum aggregate size.
2. 6 +/- 1-1/2 percent for concrete using 3/4-inch maximum aggregate size.

C. Provide concrete with the following compressive strengths at 28 days and proportion it for strength and quality requirements in accordance with ACI 318. The resulting mix shall not conflict with limiting values.

1. 28-day compressive strength: 4,000 PSI
2. Minimum cementitious content: 560 lb / CY
3. Maximum water to cement ratio: 0.44

D. Measure slump in accordance with ASTM C143:

1. Proportion and produce the concrete to have a maximum slump of 4 inches. A tolerance of up to 1 inch above the indicated maximum is allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated.
2. Mixes containing water reducers shall have a maximum slump of 6 inches after the addition of a mid-range water reducer and maximum slump of 8 inches after the addition of a high range water reducer.

E. Pozzolan Content:

1. Fly ash shall not exceed 20 percent of the total cementitious content.

F. Aggregate Size:

1. Aggregate size shall be 3/4-inch maximum
2. Combined aggregate grading shall be as shown in the following table:

Table 03 30 00-1				
Maximum Aggregate Size	1-½ inch	1 inch	¾ inch	⅜ inch
Aggregate Grade per ASTM C33	467	57	67	8

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Examine the subgrade and the conditions under which work is to be performed and notify the Engineer in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions are corrected to comply with specified subgrade conditions in a manner acceptable to the Engineer.

3.2 MIXING AND TRANSPORTING CONCRETE:

- A. General: Conform to concreting procedures set forth in ASTM C94, ACI 304R and as specified herein.
 1. Transport concrete to discharge locations without altering the specified properties of water-cement ratio, slump, air entrainment, temperature and homogeneity.
 2. Discharge concrete into forms within 1-½ hours after cement has entered mixing drum or before the drum has revolved 300 revolutions after the addition of water, whichever occurs first.
 3. Do not add water at the jobsite unless permitted by the Engineer. If it is necessary to add water to obtain the specified slump, add water per ASTM C94, but do not exceed the maximum water content in the reviewed concrete design mix. Added water shall be incorporated by additional mixing of at least 35 revolutions.
 4. Do not add water to concrete containing high range water reducing admixture. Do not add water to concrete in delivery equipment not acceptable for mixing.
 5. Keep a record showing time and place of each pour of concrete, together with transit-mix delivery slips certifying the contents of the pour.
 6. Discharge of concrete shall be completed within the limits set out in Table 03 30 00-2.

Table 03 30 00-2	
Maximum Time to Concrete Discharge	
Concrete Temperature	Limit
Over 90 Degree F	Remove concrete from jobsite and discard concrete
86 to 90 Degree F	45 minutes
81 to 85 Degree F	60 minutes
70 to 80 Degree F	75 minutes
Below 70 Degree F	90 minutes

- B. Conveying: Convey concrete from agitator or mixer truck to place of final deposit in forms by one of the following methods:
1. Buckets or hoppers with discharge gates having a clear opening equal to not less than one-third the maximum interior horizontal area or five times the maximum aggregate size being used, whichever is greater, and side slopes of not less than 60 degrees to horizontal.
 2. Buggies or wheelbarrows equipped with pneumatic tires.
 3. Round bottom, metal or metal-lined chutes with inclined slope of between 2 to 3 feet horizontally to 1 foot vertically and of sufficient capacity to avoid overflow.
 4. Circular drop pipes with a top diameter of at least eight times the maximum aggregate size, but not less than 6 inch, or tapered to not less than six times maximum aggregate size.

3.3 CONCRETE ACCEPTANCE:

- A. Accept or reject each batch of concrete delivered to the point of agitator or mixer truck discharge. Sign delivery batch tickets to indicate concrete acceptance.
- B. Reject concrete delivered without a complete concrete delivery batch ticket as specified herein. The concrete supplier will furnish copies of the signed batch ticket to the Contractor and Engineer.
- C. The testing agency shall perform field tests at the point of agitator or mixer truck discharge. Accept or reject concrete on the basis of conformity with slump, air content and temperature specified.
- D. The testing agency shall inspect concrete transit truck's barrel revolution counter and gauge for measuring water added to the concrete. Reject concrete that exceeds the maximum barrel revolution of 300, the limits in Table 03 30 00-2 or concrete that has water content exceeding the specified water-cement ratio.
- E. Reject concrete not conforming to specification before discharging into the forms.

3.4 PREPARATION AND COORDINATION:

- A. Contractor shall notify the Engineer of readiness to place concrete in any portion of the work a minimum of 24 working hours prior to concrete placement. Failure to provide this notification will be cause for delay in placing until observations can be completed.
- B. Reinforcement and condition of formwork will be observed by the Engineer prior to concrete placement.
- C. Coordinate the sequence of placement such that construction joints will occur only as designed.
- D. Schedule sufficient equipment for continuous concrete placing. Provide for backup equipment and procedures to be taken in case of an interruption in placing. Provide backup concrete vibrators at the project site. Test concrete vibrators the day before placing concrete.
- E. Compact the subgrade and/or base course. Saturate the subgrade approximately eight hours before placement and sprinkle ahead of the placement of concrete in areas where vapor barrier is not used. Remove standing water, mud, and foreign matter before concrete is deposited.
- F. When shown on contract drawings, install a granular base beneath slabs on ground. Place granular material on a compacted subgrade and compact granular base.

3.5 CONCRETE PLACEMENT:

- A. Placement shall conform to ACI 304R as modified by these specifications.
- B. Do not place concrete until free water has been removed or has been diverted out of the forms, clear of the work. Do not deposit concrete underwater, and do not allow free water to rise on any concrete until the concrete has attained its initial set. Do not permit free or storm water to flow over surfaces of concrete so as to injure the quality or surface finish.
- C. Do not place concrete during inclement weather. Protect concrete placed from inclement weather. Keep sufficient protective covering ready at all times for this purpose.
- D. Deposit concrete at or near its final position to avoid segregation caused by rehandling or flowing. Do not deposit concrete in large quantities in one place to be worked along the forms with a vibrator.
- E. Avoid inclined layers and cold joints. Place concrete at lower portion of slope first on sloping surfaces.
- F. Do not deposit partially hardened concrete in forms. Retempering of partially hardened concrete is not permitted. Remove partially hardened concrete from site at no additional compensation.

- G. Do not allow concrete to fall freely in forms to cause segregation (separation of coarse aggregate from mortar). Limit maximum free fall of concrete to four feet. Do not move concrete horizontally more than four feet from point of discharge. Space points of deposit not more than eight feet apart.
- H. Consolidate concrete using mechanical vibrators operated within the mass of concrete and / or on the forms conforming to procedures set forth in ACI 309R and as specified.
- I. Conduct vibration to produce concrete of uniform texture and appearance, free of honeycombing, streaking, cold joints or visible lift lines.
- J. Conduct vibration in a systematic manner with regularly maintained vibrators. Furnish sufficient backup units at job site. Use vibrators having minimum frequency of 8,000 vibrations per minute and of sufficient amplitude to consolidate concrete. Use not less than one vibrator with crew for each 35 to 40 cubic yards of concrete placed per hour.
- K. Insert and withdraw vibrator vertically at a uniform spacing over the entire area of placement. Space distances between insertions such that spheres of influence of each insertion overlap.
- L. Use additional vibration with pencil vibrators on vertical surfaces and on exposed concrete to bring full surface of mortar against the forms so as to eliminate air voids, bug holes and other surface defects. Employ the following additional procedures for vibrating concrete as necessary to maintain proper consolidation of concrete:
 - 1. Reduce distance between internal vibration insertions and increase time for each insertion.
 - 2. Insert vibrator as close to face of form as possible without contacting form or reinforcement.
 - 3. Use spading as a supplement to vibration where particularly difficult conditions exist.

3.6 CURING AND PROTECTION:

- A. General:
 - 1. Protect concrete from premature drying, hot or cold temperatures, and mechanical injury, beginning immediately after placement and maintain concrete with minimal moisture loss at relatively constant temperature.
 - 2. Comply with curing procedures set forth in ACI 301, ACI 308 and as specified herein.
 - 3. Perform hot weather concreting in conformance with ACI 305R and as specified herein when the ambient atmospheric temperature is 80 degrees F or above.

4. Perform cold weather concreting in conformance with ACI 306R.
5. Concrete required to be moist cured shall remain moist for the entire duration of the cure. Repeated wetting and drying cycles of the curing process will not be allowed.

B. Curing Duration:

1. Start initial curing after placing and finishing concrete as soon as free moisture has disappeared from unformed concrete surfaces. Initial curing starts as soon as concrete achieves final set. Forms left tightly in place are considered as part of the curing system, provided that wooden forms are kept continuously moist. Keep continuously moist for not less than 72 hours.
2. Begin final curing procedures immediately following initial curing and before the concrete has dried. Continue final curing for at least 7 days and in accordance with ACI 301 procedures for a total curing period, initial plus final, of at least 10 days.
3. Avoid rapid drying at the end of the final curing period

C. Curing Requirements:

1. Unformed Surfaces: Cover and cure entire surface of newly placed concrete immediately after completing finishing operations and water film has evaporated from surface or as soon as marring of concrete will not occur. Protect finished slabs from direct rays of the sun to prevent checking, crazing and plastic shrinkage.
2. Formed Surfaces: Minimize moisture loss for formed surfaces exposed to heating by the sun by keeping forms wet until safely removed. Keep surface continuously wet by warm water spray or warm water saturated fabric immediately following form removal.

D. Curing Methods:

1. Water Curing: Use water curing for unformed surfaces. Continuously water cure all exposed concrete for the entire curing period. Provide moisture curing by any of the following methods:
 - a. Keeping the surface of the concrete continuously wet by ponding or immersion.
 - b. Continuous water-fog spray or sprinkling.
 - c. Covering the concrete surface with curing mats, thoroughly saturating the mats with water, and keeping the mats continuously wet with sprinklers or porous hoses. Place curing mats so as to provide coverage of the concrete

surfaces and edges, with a 4 inch lap over adjacent mats. Weight down the curing cover to maintain contact with the concrete surface.

- E. Protection from environmental conditions: Maintain the concrete temperature above 50 degrees F continuously throughout the curing period. Make arrangements before concrete placing for heating, covering, insulation or housing to maintain the specified temperature and moisture conditions continuously for the curing period.
 - 1. When the atmospheric temperature is 80 degrees F and above, or during other climatic conditions which will cause too rapid drying of the concrete, make arrangements before the start of concrete placing for the installation of wind breaks or shading, and for fog spraying, wet sprinkling, or moisture-retaining covering.
 - 2. Protect the concrete continuously for the entire curing period.
 - 3. Maintain concrete temperature as uniformly as possible, and protect from rapid atmospheric temperature changes.
 - 4. Avoid temperature changes in concrete that exceed 5 degrees F in any one hour and 50 degrees F in any 24-hour period.
- F. Protection from physical injury: Protect concrete from physical disturbances such as shock and vibration during curing period. Protect finished concrete surfaces from damage by construction equipment, materials, curing procedures and rain or running water. Do not load concrete in such a manner as to overstress concrete.
- G. Protection from Deicing Agents: Do not apply deicing chemicals to concrete.

3.7 FIELD QUALITY CONTROL:

A. Hot Weather Requirements

- 1. During hot weather, give proper attention to ingredients, production methods, handling, placing, protection, and curing to prevent excessive concrete temperatures or water evaporation in accordance with ACI 305R and the following.
- 2. When the weather is such that the temperature of the concrete as placed would exceed 90 degrees F, use ice or other means of cooling the concrete during mixing and transportation so that the temperature of the concrete as placed will not exceed 90 degrees F.
- 3. Take precautions when placing concrete during hot, dry weather to eliminate early setting of concrete. This includes protection of reinforcing from direct sunlight to prevent heating of reinforcing, placing concrete during cooler hours of the day, and the proper and timely application of specified curing methods.

4. There will be no additional reimbursement to the Contractor for costs incurred for placing concrete in hot weather.

B. Cold Weather Requirements

1. Provide adequate equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather in accordance with ACI 306R and the following.
2. When the temperature of the surrounding atmosphere is 40 degrees F or is likely to fall below this temperature, use heated mixing water not to exceed 140 degrees F. Do not allow the heated water to come in contact with the cement before the cement is added to the batch.
3. When placed in the forms during cold weather, maintain concrete temperature at not less than 55 degrees F. Materials shall be free from ice, snow, and frozen lumps before entering the mixer.
4. Maintain the air and the forms in contact with the concrete at temperatures above 40 degrees F for the first five days after placing, and above 35 degrees F for the remainder of the curing period. Provide thermometers to indicate the ambient temperature and the temperature 2 inches inside the concrete surface.
5. There will be no additional reimbursement made to the Contractor for costs incurred for placing concrete during cold weather.

C. Concrete Testing

1. Concrete quality testing will be performed on the concrete by an independent testing agency retained by the Contractor.
2. The testing agency will use concrete samples provided by the Contractor at the point of agitator or mixer truck discharge to perform slump (per ASTM C143) , air content (per ASTM C231), and temperature tests (per ASTM C1064) and for field control test specimens.
3. The testing agency will submit test reports of concrete field measurements specified above to the Contractor and to the Engineer.
4. Provide and maintain facilities for safe storage and proper curing of concrete test specimens on the project site, as required by ASTM C31.
5. Concrete Quality Test Specimen:
 - a. Perform sampling and curing of test specimen in accordance with ASTM C31.

- b. Testing agency personnel will record truck and load number from the delivery batch ticket, the concrete placement location of each specimen, the date, concrete strength, slump, air content and temperature.
 - c. The testing agency will cast a minimum of one set of 6 test specimens, each 4 inch diameter by 8 inch long cylinders, for each 50 cubic yard of each mix design of concrete but not less than once a day nor less than once for each 5,000 sq. ft. of surface area of concrete placed.
 - d. Test cylinders in accordance with ASTM C39. Test one cylinder at 7 days for information; test three cylinders at 28 days for acceptance; and hold two reserve cylinders for verification. Strength acceptance will be based on the average of the strengths of the three cylinders tested at 28 days. If one cylinder of a 28-day test manifests evidence of improper sampling, molding, or testing, other than low strength, discard it and use a reserve cylinder for the test result
- 6. The Contractor may take field control test specimens for small quantities of concrete.
 - 7. Concrete acceptance shall be based on the requirements of ACI 318.
 - 8. Field cured cylinders conforming to ASTM C31 will be required to determine field compressive strength of concrete. Laboratory cured cylinders for concrete quality testing shall not be used for determining field compressive strength.

3.8 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

SECTION 31 23 33

TRENCHING AND BACKFILL

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide trenching and backfill as indicated and in compliance with Contract Documents.
- B. Section includes:
 - 1. Trench excavation width and safety.
 - 2. Backfill materials and placement.
 - 3. Soil and aggregate materials.
 - 4. Compaction and testing.

1.2 REFERENCES:

- A. American Association of State and Highway Transportation Officials (AASHTO) Publications:
 - 1. M147: Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses.
- B. ASTM International (ASTM):
 - 1. C33: Specification for Concrete Aggregates.
 - 2. C150: Standard Specification for Portland Cement.
 - 3. C618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 - 4. D75: Standard Practice for Sampling Aggregates.
 - 5. D421: Practice for Dry Preparation of Soil Samples for Particle Size Analysis and Determination of Soil Constants.
 - 6. D422: Test Method for Particle-Size Analysis of Soils.
 - 7. D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³).

8. D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft³).
9. D2419: Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
10. D2434: Standard Test Method for Permeability of Granular Soils (Constant Head).
11. D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
12. D2488: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).
13. D2940/D2940M: Standard Specification for Graded Aggregate Material For Bases or Subbases for Highways or Airports.
14. D4318: Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
15. D6938: Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

C. Occupational Safety and Health Administration (OSHA) Standards and Regulations:

1. 29 CFR 1926, Subpart P: Safety and Health Regulations for Construction, Excavations.

1.3 CLASSIFICATION OF EXCAVATION:

- A. Excavation is considered incidental to other work for the entire project and is not classified. Excavation is not classified, except where rock excavation is authorized outside specified or indicated limits of excavation.

1.4 DEFINITIONS:

- A. Percent Compaction or Compaction Density: The field dry density of compacted material, expressed as a percentage of the maximum dry density.
- B. Field Dry Density or Field Density: In-place density as determined by ASTM D6938 (Nuclear Method).
- C. Maximum Dry Density: Laboratory density as determined by ASTM D698 (Standard Proctor) or ASTM D1557 (Modified Proctor) and occurring at the optimum moisture content of the soil being tested.

1.5 SUBMITTALS:

- A. Submit the following in accordance with Section 01 33 00.

1. Gradation analysis.
2. Materials Sources: Name of source, location, date of sample, sieve analysis, and laboratory compaction characteristics.
3. Test and Evaluation Reports:
 - a. Field density testing reports: Provide results from field density testing of prepared subgrade and compacted fill.
 - b. Grain-size analysis.
 - c. Laboratory compaction characteristics of soils.
 - d. Water content.
4. Compaction method.

1.6 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Sample backfill materials in accordance with ASTM D75.
- C. Provide testing in accordance with Part 3 of this section.
 1. Employ an independent testing laboratory accredited by the American Associates of State Highway and Transportation Officials (AASHTO) Accreditation Program.
 2. Minimum of three years experience in sampling, testing and analysis of soil and aggregates, and monitoring field compaction operations. Minimum of three references from previous work.

1.7 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01 66 10.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIALS:

- A. Suitable Material: Material from on-site excavation or permitted off-site sources that meets all of the specified requirements for its intended use and is not unsuitable. Wet subgrade material which meets other requirements for suitable material is suitable.
- B. Unsuitable Material: Material that fails to meet requirements for suitable materials; or contains any of the following:

1. Organic clay, organic silt, or peat; as defined in ASTM D2487 and visually determined in ASTM D2488.
2. Vegetation, wood, roots, leaves, and organic, degradable material.
3. Stones or rock fragments over 6 inches in any dimension.
4. Porous biodegradable matter, excavated pavement, construction debris, rubbish, or refuse.
5. Ice, snow, frost, or frozen soil particles.

C. Crushed Stone: MDOT 23A crushed limestone.

D. Sand: MDOT Class II granular material free from clay balls, organic matter, and other deleterious substances.

2.2 EQUIPMENT:

- A. Compaction equipment shall be capable of consistently achieving the specified compaction requirements.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Verify that excavation safety meeting the requirements of OSHA 29 CFR 1926, Subpart P are in place before commencing with excavation.
- B. Verify that materials submittals have been accepted by Engineer before commencing with work requiring the use of these materials.
- C. Immediately notify the Engineer if unexpected subsurface facilities or suspected hazardous materials are encountered during excavation. Discontinue affected work in area until notified to resume work.

3.2 PREPARATION:

- A. Contact 811, Michigan Miss Dig for utility markouts prior to the start of work.
- B. Cut pavement and concrete with a saw or pneumatic tools to prevent damage to remaining pavement. Dispose of large pieces of demolished pavement before proceeding with excavation.

3.3 PROTECTION OF IN-PLACE CONDITIONS:

- A. Comply with the requirements specified in Section 01 14 14.

- B. Support and protect from damage – existing pipes, poles, wires, fences, curbs, property line markers, and other features or structures which must be preserved in place to avoid being temporarily or permanently relocated.
- C. Discontinue digging by machinery when excavation approaches pipes, conduits, or other underground structures. Continue excavation by use of hand tools. Include such manual excavation in work to be done when incidental to normal excavation and under items involving normal excavation.
- D. Excavation Near Private Property:
 - 1. Record existing condition of features on adjacent property by means of dated photographs or cameras. Provide construction photographs according to Section 01 32 33.
 - 2. Operate excavating machinery and cranes so as to prevent injury to overhanging branches and limbs.
 - 3. Protect cultivated hedges, shrubs, and plants which would otherwise be damaged by the work.
 - 4. Where protection of vegetation is not possible, dig up, temporarily transplant, and maintain. After active construction operations in the area have ceased, transplant vegetation to the original positions and provide water and nursery care until growth is re-established.
 - 5. Do not use or operate tractors, bulldozers, or other power-operated equipment on paved surfaces. Provide protection on pavement or tracks if construction traffic is unavoidable.

3.4 RESTORATION:

- A. Existing surfaces, features, or utilities that are to remain but are damaged during construction shall be repaired or replaced to at least the condition in which they were found immediately before work began, unless noted otherwise.
- B. Cut all damaged branches, limbs, and roots smoothly and neatly without splitting or crushing. Neatly trim, cut the injured portions and cover with an application of grafting wax or tree healing paint. Replace damaged trees which subsequently die or continue to show lack of growth due to damage, one year after substantial completion.
- C. Includes, but is not limited to: hedges, shrubs, and plants. Vegetation that is damaged shall be replaced with equal kind and of at least the quality before work began.

3.5 EXCAVATION:

- A. As necessary, provide dewatering system to allow for working conditions in dry, stable area. Properly dispose of water to avoid damage to property and in accordance with laws and regulations.
- B. Locate stockpiled excavated material at least 3 feet from edge of excavations to prevent cave-ins or bank slides.
- C. Open excavations overnight are not permitted unless otherwise authorized by the Owner or Engineer. Steel plating may be used to protect any open excavations authorized by the Owner or Engineer. Plating shall be a minimum of ¾" thick and be of adequate size to support all legal axle loads. Plating shall overlap existing pavement by at least two feet on all sides of the edge of the excavation.

3.6 BACKFILL:

- A. Fill to lines and grades necessary to provide finish grades.
- B. Use a placement method that does not disturb or damage other work or existing features.
- C. Maintain fill materials within 3 percent of optimum moisture, to attain required compaction density.
- D. Place and compact material in equal continuous layers.
- E. Maximum compacted depth is 6 inches for aggregate materials and 8 inches for soil materials, unless noted otherwise.

3.7 COMPACTION:

- A. Compact to density specified and indicated for various types of material. Control moisture content of material being placed as specified, or if not specified - at a level slightly lower than optimum.
- B. Compaction Density: Existing subgrade and base materials shall be compacted to achieve minimum 95% maximum dry density.

3.8 FIELD QUALITY CONTROL:

- A. Compaction shall be deemed to comply with the specifications when no more than 1 test of any 3 consecutive tests falls below the specified relative compaction. The one test shall be no more than 3 percentage points below the specified compaction. The Contractor shall pay the costs for any retesting or additional testing of work not conforming to the specifications.
- B. Perform particle size distribution and gradation analyses using ASTM D422 and following standard practices in ASTM D421. Perform one test for every source and

submit results to Engineer for acceptance. Repeat the moisture density test for every 5,000 cubic yard of material used.

- C. Perform field density testing in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- D. Evaluate field density test results in relation to maximum dry density as determined by testing material in accordance with ASTM D1557 (Modified Proctor).
- E. Perform tests in accordance with ASTM D4318 to determine Liquid Limit, Plastic Limit and Plasticity Index and submit test results to Engineer for acceptance.
- F. Location of field density tests shall be mutually acceptable to testing laboratory and the Engineer as recommended by the Engineer.
- G. Owner may retain the services of an independent testing laboratory to conduct confirmatory testing and inspection.

3.9 SHRINKAGE:

- A. Backfill to a height above finished grade which will allow for the shrinkage or consolidation of material. Initially, provide at all points, an excess of at least one percent of total height of backfill measured from stripped surface to top of finished surface.
- B. Supply specified materials and build up low places, without additional cost if embankment or backfilling settles so as to be below the indicated level for proposed finished surface at any time before final acceptance of the work.

3.10 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

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SECTION 31 50 00

EXCAVATION SUPPORT SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide excavation support systems as indicated and in compliance with Contract Documents.
- B. Design, furnish and install excavation support systems to maintain lateral support, prevent loss of ground, limit soil movements to acceptable limits and protect from damage existing and proposed improvements including pipelines, utilities, structures, roadways, railroads and other facilities.
- C. The requirement of specified excavation support systems does not relieve the Contractor from the responsibility of furnishing and installing proper temporary excavation support systems in other areas where required.
- D. Common types of excavation support system include, but are not limited to; singular or multiple stages comprised of cantilevered or internally braced soldier piles and lagging, steel sheetpile wall, timber sheetpile wall, trench box, or combinations thereof. Trench box temporary excavation support system is only acceptable for pipe or utility trench excavations approved by the Engineer. Temporary unsupported open cut excavation with stable sloping sides is allowed in accordance with OSHA requirements.
- E. Extraction of steel sheetpile wall, timber sheetpile wall, or soldier piles are not permitted unless otherwise indicated, specified or approved by the Engineer.
- F. Wherever the word "sheeting" is used in this section or on the contract documents, it shall be in reference to any type of excavation support system specified except trench box.
- G. Construction of the excavation support systems shall not disturb the existing infrastructure or the completed proposed infrastructure. Damage to such infrastructure shall be repaired at Contractor's expense.
- H. Adjacent structures are those that are bear upon soils above the proposed excavation depth and within a distance equal to twice the total depth of the excavation away from the closest edge of the excavation. Monitor and protect adjacent structures as specified and indicated.
- I. Bear the entire cost and responsibility of correcting any failure, damages, subsidence, upheaval or cave-ins as a result of improper installation, maintenance or design of the excavation support systems. Pay for all claims, costs and damages that arise as a result of the Work performed at Contractor's expense.

1.2 REFERENCES:

- A. Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29: Subpart P - Excavations, Trenching and Shoring.

1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00.

- 1. Submit the following qualifications four (4) weeks prior to the construction:

- a. Qualifications of Contractor's excavation support system designer as specified in Paragraph 1.04.C.
- b. Qualifications of Contractor's excavation support system installer as specified in Paragraph 1.04.D.
- c. Qualifications of Contractor's excavation support system installation supervisor as specified in Paragraph 1.04.E.

- 2. Submit an excavation support plan stamped and signed by a Registered Professional Engineer at least two weeks prior to start of the construction. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor remains responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum:

- a. Proposed excavation support system(s), details, location, layout, depths, extent of different types of support relative to existing features and the permanent structures to be constructed, and methods and sequence of installation and removal.
- b. Certificate of Design: Refer to Section 01 33 00.
- c. A list of all design assumptions, including safety factors used for the excavation support system(s) and all lateral pressures used for each system.
- d. Requirements of dewatering during the construction.
- e. Minimum lateral distance from the edge of the excavation support system for use for vehicles, construction equipment, and stockpiled construction and excavated materials.
- f. List of equipment used for installing the excavation support systems.

3. Submit a Construction Contingency Plan specifying the methods and procedures to maintain excavation support system stability if the allowable movement of the adjacent ground and adjacent structures is exceeded.
4. For excavation support systems left in place, submit the following as-built information prior to backfilling and covering the excavation support systems:
 - a. Survey locations of the excavation support systems, including coordinates of the ends and points of change in direction.
 - b. Type of the excavation support system.
 - c. Elevations of top and bottom of the excavation support systems left in place.

1.4 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01 43 00.
- B. Conform to the requirements of the OSHA Standards and Interpretations: "Part 1926 Subpart P - Excavation, Trenching, and Shoring".
- C. Prepare design, including calculations and drawings, under the direction of a Professional Engineer registered in the State of Michigan where the project is located and having the following qualifications:
 1. Not less than ten (10) years experience in the design of specific excavation support systems to be used.
 2. Completed not less than five (5) successful excavation support system projects of equal type, size, and complexity within the last five (5) years.
- D. Excavation Support System Installer's Qualifications:
 1. Not less than three (3) year experience in the installation of similar types and equal complexity as the proposed system.
 2. Completed not less than three (3) successful excavation support systems of similar type and equal complexity as the proposed system.
- E. Install all excavation support systems under the supervision of a supervisor having the following qualifications:
 1. Not less than five (5) years experience in installation of systems of similar type and equal complexity as the proposed system.
 2. Completed at least five (5) successful excavation support systems of similar type and equal complexity as the proposed system.
- F. All welding shall be performed in accordance with AWS D1.1.

1.5 DESIGN CRITERIA:

A. Design of excavation support systems shall meet the following minimum requirements:

1. Support systems shall be designed for earth pressures, hydrostatic pressure, equipment, temporary stockpiles, construction loads, roadways, railroads, and other surcharge loads.
2. Design a bracing system to provide sufficient reaction to maintain stability.
3. Limit movement of ground adjacent to the excavation support system to be within the allowable ground deformation as specified.
4. Design the embedment depth below bottom of excavation to minimize lateral and vertical earth movements and provide bottom stability. Toe of braced temporary excavation support systems shall not be less than 5 feet below the bottom of the excavation.
5. Design excavation support systems to withstand an additional 2 feet of excavation below proposed bottom of excavation without redesign except for the addition of lagging and/or bracing.
6. The design location of the excavation support wall shall be determined such that the installed wall and bracing system components are all located outside the limits of the permanent infrastructure. Construction tolerances shall be considered in determining the plan location.

1.6 DELIVERY, STORAGE AND HANDLING:

- A. Provide in accordance with Sections 01 66 10 and as specified.
- B. Store sheeting and bracing materials to prevent sagging which would produce permanent deformation. Keep concentrated loads which occur during stacking or lifting below the level which would produce permanent deformation of the material.

1.7 PROJECT CONDITIONS:

- A. Subsurface Conditions: Refer to Section 00 21 13.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Structural Steel: All soldier piles, wales, rakers, struts, wedges, plates, waterstop and accessory steel shapes shall conform to ASTM A36.
- B. Steel Sheet Piling: ASTM A572, continuous interlocking type.

- C. Timber Lagging Left in Place: Pressured treated per AWWA standards.
- D. Concrete: Section 03 30 00.
- E. Tamping tools adapted for backfilling voids after removal of the excavation support system.
- F. Provide specific trench box sizes for each pipe and utility excavation with structural capacity of retaining soil types as described in OSHA's 29 CFR Part 1926 Subpart P.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Installation of the excavation support systems shall not commence until the related earth excavation and dewatering submittals have been reviewed by the Engineer with all Engineer's comments satisfactorily addressed.
- B. Install excavation support systems in accordance with the excavation support plan.
- C. Do not drive sheeting within 100 feet of concrete less than seven (7) days old.
- D. Carry out program of excavation support in such a manner as to prevent undermining or disturbing foundations of existing structures of Work ongoing or previously completed.
- E. Bottom of the trench box excavation support system shall be above the pipe invert prior to installing the pipe.
- F. Notify utility owners if existing utilities interfere with the excavation support system. Modify the existing utility with the utility owner's permission or have the utility owner make the modifications at Contractor's expense.

3.2 REMOVAL OF EXCAVATION SUPPORT SYSTEMS:

- A. Shoring shall be left in place unless otherwise indicated.
- B. When indicated, remove the excavation support system without endangering the constructed or adjacent structures, utilities, or property. Immediately backfill all voids left or caused by withdrawal of excavation support systems with bank-run gravel, screened gravel or select borrow by tamping with tools specifically adapted for that purpose.
- C. The excavation support system left-in-place shall be cut-off a minimum of 2 feet below the bottom of the next higher foundation level or a minimum of 5 feet below finished grade.
- D. Conduct survey of the locations and final cut-off elevations of the excavation support systems left in place.

3.3 **CONTRACT CLOSEOUT:**

- A. **Provide in accordance with Section 01 77 00.**

END OF SECTION

SECTION 32 12 00
FLEXIBLE PAVING

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide flexible paving as indicated and in compliance with Contract Documents.
 - 1. Scope includes:
 - a. Aggregate base course.
 - b. Asphalt concrete pavement.

1.2 REFERENCES:

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. M147: Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses.
 - 2. M226: Standard Specification for Viscosity-Graded Asphalt Cement.
 - 3. M320: Standard Specification for Performance-Graded Asphalt Binder.
 - 4. T89: Standard Method of Test for Determining the Liquid Limit of Soils.
 - 5. T90: Standard Method of Test for Determining the Plastic Limit and Plasticity Index of Soils.
 - 6. T99: Standard Method of Test for Moisture-Density Relations of Soils Using a 5.5-lb Rammer and a 12-in. Drop.
 - 7. T104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
- B. ASTM International (ASTM):
 - 1. C125: Standard Terminology Relating to Concrete and Concrete Aggregates.
 - 2. D242: Standard Specification for Mineral Filler For Bituminous Paving Mixtures.
 - 3. D946: Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
 - 4. D977: Standard Specification for Emulsified Asphalt.

5. D2027: Standard Specification for Cutback Asphalt (Medium-Curing Type).
6. D3381/D3381M: Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction.
7. D6373: Standard Specification for Performance Graded Asphalt Binder.

C. Michigan Department of Transportation (MDOT)

1.3 DEFINITIONS:

- A. Gravel: Coarse aggregate resulting from natural disintegration and abrasion of rock or processing of weakly bound conglomerate.
- B. Crushed Gravel: The product resulting from the artificial crushing of gravel with substantially all fragments having at least one face resulting from fracture.
- C. Crushed Stone: The product resulting from the artificial crushing of rocks, boulders, or large cobblestones, substantially all faces of which have resulted from the crushing operation.

1.4 SUBMITTALS:

A. Test Results:

1. Crushed gravel and stone base course testing results.

1.5 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Codes and Standards: Comply with the latest edition of Michigan Department of Transportation (MDOT) standard specifications and details.

1.6 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01 66 10.
- B. Transport bituminous mixtures in covered trucks whenever:
 1. Rainy weather, or
 2. Air temperature is less than 60 degrees F.
- C. Adjust weight, type, capacity, haul routes, and method of operation of hauling vehicles so that:
 1. No damage results to existing streets, subgrade or base course, and

2. Noise and air pollution levels are not noticeably increased along selected haul route.

D. Haul routes through residential areas shall be avoided as much as possible.

1.7 PROJECT CONDITIONS:

A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 degrees F, and when temperature has not been below 35 degrees F for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Place asphalt concrete surface course when atmospheric temperature is above 40 degrees F, and when base is dry. Place binder course when air temperature is above 30 degrees F, and rising.

PART 2 - PRODUCTS

2.1 AGGREGATE BASE COURSE:

A. MDOT 23A crushed limestone.

2.2 PAVEMENT MATERIALS

A. Base and Surface Course: MDOT 13A hot mix asphalt (HMA)

B. Crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand.

C. Sand prepared from stone, blast-furnace slag, or gravel, or combinations thereof may be used if required to suit local material availability.

D. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with ASTM D242.

E. Asphaltic Materials:

1. Prime Coat: Cut-back asphalt type; ASTM D2027 MC-30, MC-70 or MC-250.

2. Tack Coat: Emulsified asphalt; ASTM D977 or D2397; SS-1, SS-1h, CSS-1 or CSS-1h, diluted with one part water to one part emulsified asphalt.

3. With the exception of CMS-2, asphalt for tack coat may be diluted with 50 percent water provided that the resulting material produces a uniform application of the tack.

PART 3 - EXECUTION

3.1 PRIORITIZATION OF WORK:

- A. Coordinate work with City Public Works and Director of Transportation.
- B. State Highways and roads identified by Public Works Department and Director of Transportation as “Major Roads” shall be prioritized for final restoration. Director of Transportation shall provide the Contractor with a list of “Major Roads” before the start of restoration activities.

3.2 EXAMINATION:

- A. Check subgrade as to soundness, outline, and contour.

3.3 SUBGRADE PREPARATION:

- A. Excavate existing temporary restoration material to the required depth to facilitate completion of restoration work. Scrape down subgrade bumps and irregularities to obtain smooth, even surface. Compact existing subgrade to minimum 95% density.
 - 1. Temporary restoration will typically consist of compacted MDOT 23A crushed stone. Temporary restoration in State Highways and “Major Roads” may include or consist entirely of compacted cold patch asphalt or other bituminous material.
- B. Proof roll as specified in Section 31 23 33.
- C. Remove and replace soft or spongy areas as specified in Section 31 23 33.

3.4 PAVEMENT PREPARATION:

- A. Saw cut edges of existing paving and / or concrete square and to a true vertical alignment unless otherwise directed by the Engineer. Saw cuts shall be made through the entire horizontal cross-section of existing asphalt and / or concrete, such that no concrete or bituminous material remains in the area intended to be restored. Remove and properly dispose of all bituminous and concrete material debris. This debris material shall not remain in the area to be restored or used as base material. Debris material shall not be stockpiled on-site overnight.
- B. Remove loose material from compacted base course immediately before applying prime coat.
- C. If base course becomes rutted, loose or uneven due delays in placing subsequent courses then proof roll prepared surface to check for unstable areas. Provide additional compaction or remove unstable areas, backfill and compact. Do not begin paving work until deficient areas have been re-graded and corrected and are ready to receive paving.
- D. Prime Coat:

1. Apply at rate of 0.20 to 0.50 gallons per square yard over compacted stone base.
2. Apply material to penetrate and seal, but not flood, surface.
3. Cure and dry as long as necessary to attain penetration and evaporation of volatile vapors.

E. Tack Coat:

1. Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement.
2. Distribute at rate of 0.05 to 0.15 gallons per square yard of surface.
3. Allow to dry until at proper condition to receive paving.
4. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.5 BASE COURSE INSTALLATION:

- A. Place materials when surface is dry and atmospheric temperature is above 40 degrees F.
- B. Construct in two or more layers of approximate equal lifts; maximum compacted lift is 6 inches.
- C. Deposit material on foundation or previously placed layer to minimize segregation and facilitate spreading to uniform layer.
- D. If blending of materials is done on roadway, inter-mix aggregate and blending material by blade graders, discs, harrows or other equipment to produce uniform distribution or gradation throughout finished mixture. Avoid excessive manipulation or mixing which will cause segregation between coarse and fine materials.
- E. Place and spread each layer to thickness, width, and contour.
- F. Compact each layer before proceeding to subsequent layers. Compact to 95% of maximum dry density, unless noted otherwise. Refer to Section 31 23 33 for required compaction and testing requirements.
- G. Prior to and during compaction shape material and maintain to dimensions and contour. Keep surface of each layer true and smooth.

3.6 PLACING MIX:

- A. Place asphalt concrete mixture on prepared surface, spread, and strike-off. Spread mixture at minimum temperature of 225 degrees F. Place inaccessible and small areas by hand. Place course to required grade, cross section, and compacted thickness.

- B. Place in strips not less than 10 feet wide, unless otherwise acceptable to Engineer.
- C. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
- D. Grade Control: Establish and maintain required lines and elevations to within 3/8 inch.
- E. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

3.7 ROLLING:

- A. General: Begin rolling when mixture will bear roller weight without excessive displacement. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- B. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
- C. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.
- D. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
- E. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.

3.8 FIELD QUALITY CONTROL:

- A. Base Course Testing:
 - 1. Optimum Moisture Content and Maximum Density: Comply with AASHTO T99, Method C, with replacement of fraction of aggregate retained on 3/4 inch sieve. Replace with No. 4 to 3/4 inch material.
- B. Pavement Testing:
 - 1. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving.

2. Thickness Tolerances: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
 - a. Base Course Thickness: Less than 1/4-inches plus or minus.
 - b. Surface Course Thickness: Less than 1/4-inches plus or minus.
3. Surface Smoothness Tolerances: Test finished surface of each asphalt concrete course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding following tolerances for smoothness.
 - a. Base Course: 1/4-inches.
 - b. Surface Course: 1/8-inches.
 - c. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template, 1/4 inch.
 - d. Profile and Section: Variation from true shall not exceed +/- 3/8-inch.

3.9 PROTECTION:

- A. After final rolling:
 1. Do not permit vehicular traffic on pavement until it has cooled and hardened.
 2. Protect paving from traffic until mixture has cooled enough not to become marked.

3.10 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

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SECTION 32 16 00

CONCRETE CURBS, GUTTERS, SIDEWALKS, AND DRIVEWAYS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide concrete curbs, gutters, sidewalks, and driveways as indicated and in compliance with Contract Documents.

1.2 REFERENCES:

A. ASTM International (ASTM):

1. A82/A82M: Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. A185/A185M: Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
3. A497/A497M: Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
4. C33/C33M: Standard Specification for Concrete Aggregates.
5. C1602/C1602M: Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
6. D1190: Standard Specification for Concrete Joint Sealer, Hot-Applied Elastic Type (Withdrawn).
7. D6690: Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

B. Michigan Department of Transportation (MDOT)

1. All work shall be completed in accordance with MDOT standards.

1.3 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Sustainability Standards Certifications.

1.4 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01 66 10.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Water: Potable water.
- B. Aggregate Base: Minimum 6 inches thick, unless noted otherwise.

2.2 CONCRETE FORMWORK:

- A. Forms: Section 03 10 00.
 - 1. Forms shall be made of steel or wood or other material capable of supporting concrete and mechanical concrete placing equipment that is sufficiently rigid to maintain the specified tolerances.
 - 2. Forms shall be clean and free of dirt, rust, and hardened concrete.

2.3 CONCRETE:

- A. Concrete: Section 03 30 00.

2.4 SIDEWALKS AND DRIVEWAYS:

- A. Sidewalks: 4-inches thick
- B. Driveways: 6-inches thick
- C. Reinforcement: ASTM A185/A185M.

2.5 CONCRETE FINISHES:

- A. Sidewalks and driveways: Float and normal broom finish.
- B. Curbs and Gutters: Normal broom finish.

2.6 ACCESSORIES:

- A. Section 03 15 00.

PART 3 - EXECUTION

3.1 PREPARATION:

- A. Excavate and shape subgrade to line, grade, and cross section. Previously entailed the removal of concrete material as necessary to facilitate the work. Existing subgrade below the concrete was typically no removed. Temporary restoration of sand and / or stone was placed to allow unimpeded pedestrian traffic and use of the sidewalk.

Temporary restoration material should be removed and properly disposed of prior to the placement of aggregate base material.

- B. Saw cut edges of existing curbing and gutter square and to a true vertical alignment unless otherwise directed by the Engineer. Saw cuts shall be made through the entire horizontal cross-section of existing curb and gutter such that no concrete material remains in the area intended to be restored. Remove and properly dispose of all concrete material debris. This debris material shall not remain in the area to be restored or used as base material. Debris material shall not be stockpiled on-site overnight.
- C. Place aggregate base as specified and shown in the details. Remove all soft subgrade material encountered while compacting and backfill with aggregate base.
- D. Moisten aggregate base immediately before placing concrete to minimize absorption of water from fresh concrete.
- E. Provide concrete surfaces that are clean and dry - free of oil, dirt or foreign materials immediately before application of compounds or painting.

3.2 COMPACTION:

- A. Refer to Section 31 23 33 for additional compaction requirements.
- B. Subgrade: Compact as specified in Section 31 23 33
- C. Aggregate Base: Compact as specified in Section 31 23 33

3.3 CURB CONSTRUCTION:

- A. Fine grade and compact subgrade.
- B. Place aggregate base and compact. Top of aggregate base shall be at the proper level to receive concrete.
- C. Set forms on face of curb to eliminate horizontal joints within 7 inches of the top of curb.
- D. Brace forms to prevent change of shape or movement in any direction resulting from the weight of the concrete during placement.
- E. Construct short-radius curved forms to exact radius.
- F. Construct curbs to line and grade required to match existing.
- G. Construct curbs in areas where existing curb was removed to facilitate work.
- H. Expansion Joints: Place preformed asphalt-impregnated expansion joints at intervals not exceeding 45 feet or less than 15 feet, at the beginning and end of curved portions of the

curb, at each change in thickness in section, at the end of curbs at buildings and other structures, and at connections to existing curbs.

- I. Contraction Joints: Place contraction joints in the curb at uniform intervals not exceeding 15 feet. Contraction joints shall be of the open-joint type. Construct by inserting a thin, oiled steel sheet vertically in the fresh concrete to force coarse aggregate away from the joint. Insert the steel sheet the full depth of the curb. After initial set has occurred in the concrete and prior to removing the front curb form, remove the steel sheet with a sawing motion. Finish top of curb with a steel trowel and finish edges with a steel edging tool.
- J. Remove forms after concrete has set sufficiently to support its own weight.
- K. Finish exposed surfaces of concrete by rubbing with a burlap sack or similar device that will produce a uniformly textured surface, free of form marks, honeycomb, and other defects.
- L. Remove and replace defective concrete.
- M. Finished curbs shall present a uniform appearance for both grade and alignment. Remove any section of curb showing abrupt changes in alignment or grade or that is more than 1/4 inch away from its location as staked and construct new curb in its proper location.
- N. Apply curing compound to exposed surfaces after finishing concrete. Curing shall continue for a minimum of 5 days.
- O. Allow at least 7 days before backfilling and compacting adjacent to curing concrete. Backfill with earth, free from foreign material and rocks that are 2 inches or larger. Tamp backfill firmly in place.

3.4 SIDEWALK AND DRIVEWAY CONSTRUCTION:

- A. Place, process, finish, and cure concrete according to Section 03 30 00.
- B. Cross slope shall not exceed 1/4-inch per foot.
- C. Slope sidewalks and driveways away from structures at 1/4-inch per foot unless noted otherwise.
- D. At locations where the new sidewalk or driveway is to abut existing concrete, saw concrete for a depth of 2 inches, chip the old concrete down to sound material and a plane surface, clean the surface, and apply a neat cement paste just prior to pouring the new concrete.
- E. Expansion Joints: Place preformed asphalt expansion joints at intervals not exceeding 45 feet or less than 15 feet, where the sidewalk or driveway ends at a curb, and around posts, poles, or other objects protruding through the sidewalk or driveway. Place

expansion joints where new sidewalk abuts existing sidewalk and between sidewalks and driveways, buildings, or other structures.

- F. Place preformed asphalt expansion joint material between back of curbs and sidewalks.
- G. Provide contraction joints transversely to the walks at locations opposite the contraction joints in the curb and at intervals along the sidewalk such that the distance between contraction joints does not exceed 1.5 times the sidewalk width. These joints shall be 3/16-inch by one-fourth of the slab thickness weakened plane joints. They shall be straight and at right angles to the surface of the walk.
- H. Broom concrete surface with a fine-hair broom at right angles to the length of the sidewalk or driveway and tool at all edges, joints, and markings. Mark the walks transversely at 5-foot intervals with a jointing tool, unless noted otherwise. Upon completion of the finishing, apply a curing compound to exposed surfaces.
- I. Finished sidewalk or driveway shall present a uniform appearance for both grade and alignment. Remove any section of sidewalk or driveway showing abrupt changes in alignment or grade or that is more than 2 inches away from its location as staked and construct new sidewalk or driveway in its proper location.

3.5 FINISHING:

- A. Float (for sidewalks, driveways and flatwork):
 - 1. Use magnesium or aluminum hand floats or power floats with slip on float shoes after concrete has stiffened to point where 1/4-inch maximum indentation can be imparted by normal foot pressure. Do not use combination blades for floating.
 - 2. Float finish shall result in uniform smooth granular texture.
 - 3. After floating, check slab tolerances with 10-foot straightedge. Fill low spots with fresh concrete.
 - 4. Do not sprinkle with dry cement or add water.
- B. Broom Finish:
 - 1. Normal Broom Finish: Use fine, soft-bristled broom to produce a non-skid surface.
 - 2. Texture shall be reviewed by Engineer.
 - 3. Sidewalks and Driveways: Texture perpendicular to direction of travel with trowel and radius edge using 1/4-inch radius.
 - 4. Curbs and Gutters: Texture parallel to travel direction of pavement.

3.6 TOLERANCES:

A. Subgrade: Smooth and free from irregularities at the specified relative compaction. The subgrade shall be considered to extend over the full width of the base course.

1. Elevation: 1/2-inch, plus or minus from the indicated grade and cross-section.

B. Forms: Check constructed forms are within tolerance by using a 10-foot straightedge along the top of forms. Allowable tolerance is:

1. Grade: 1/8-inch over 10 feet, plus or minus.

2. Alignment: 1/8-inch, plus or minus.

3.7 FIELD QUALITY CONTROL:

A. Refer to Section 31 23 33 for compaction and testing requirements.

B. Submit compaction test results to Engineer for review.

C. Concrete Testing: Section 03 30 00. Maintain records of placed concrete including: record date, location of pour, quantity, air temperature, and test samples taken. Submit test results to Engineer for acceptance.

D. Defective Concrete: As defined in Section 03 30 00.

3.8 PROTECTION:

A. Protect concrete from damage and replace if damage occurs.

3.9 CLOSEOUT ACTIVITIES:

A. Provide in accordance with Section 01 77 00.

END OF SECTION

SECTION 32 90 10

PLANTING

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide for establishment of permanent vegetation.
- B. Provide topsoiling, fertilizing, seeding, planting and related work as indicated and specified.
- C. Restoration of grass and landscaped areas of site disturbed during completion of hydrovac investigations and service line replacement work.

1.2 REFERENCES:

- A. Comply with local landscaping ordinance or state standard.
- B. Comply with American National Standards Institute (ANSI) Z60.1-2004 American Standard for Nursery Stock.
- C. ASTM International (ASTM):
 - 1. D5268: Standard Specification for Topsoil Used for Landscaping Purposes.
 - 2. D5435: Standard Test Method for Plant Growth and Food Chain Protection.

1.3 SUBMITTALS:

- A. Product Data:
 - 1. List indicating source of plant material to be provided, at least 4 weeks prior to digging. Include see list naming seeds, pounds per acre, and supplier's name, address and phone number.
 - 2. Product Data, rates of application, and anticipated uses of pesticides, herbicides, and fumigants.
 - 3. Certificates concerning seed mixture, purity, germinating value, and crop year identification.
- B. Submit in accordance with Section 01 33 00.

1.4 QUALITY ASSURANCE:

- A. Source Quality Control:

1. Certification: Material shall comply with governmental regulations prevailing at supply source and project. Investigate sources of supply and make assurances that plants will be supplied as indicated in the Planting Plan in sizes, variety and quality noted and specified before submitting bid.
2. Contractor will furnish two copies of written maintenance, instructions for maintenance and care of lawn areas.
3. Furnish suitable quantities of water, hose and appurtenances.
4. Provide topsoil that complies with ASTM 5268 – Standard Specification for Topsoil Used for Landscaping Purposes.
5. Begin maintenance immediately after planting. Continue maintenance for 1 year.
6. Repair or replace seeded areas, which in judgment of Engineer, have not survived and grown in a satisfactory manner, for a period of 1 year after date of acceptance.

1.5 DELIVERY STORAGE AND HANDLING:

A. Delivery:

1. Schedule shipping to minimize on-site storage of materials.
2. Fertilizer: Deliver fertilizer to site in original, unopened containers bearing weight, manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state law.
3. Deliver topsoil in an unfrozen and non-muddy condition

1.6 PROJECT/SITE CONDITIONS:

A. Inspection:

1. Prior to beginning Work, Contractor shall examine and verify acceptability of Site for conditions under which Work will be performed. Do not proceed with Work until unsatisfactory conditions have been corrected.
2. Starting Work constitutes acceptance of conditions under which Work is to be performed. After such acceptances, Contractor shall be responsible for correcting unsatisfactory and defective Work resulting from such unsatisfactory conditions.
3. It is the intent of this specification that existing trees within Work limits, not be disturbed by the Work and be saved and protected, except where specified to be removed.

B. Utilities:

1. Locate underground utilities by servicing agencies.

2. Water shall be provided by Contractor.
- C. Planting Seasons:
1. Spring Planting: From time soil becomes workable to June 15. Consider current and forecasted weather conditions.
 2. Fall Planting: September 1 to November 15.
 3. Summer Season: Planting shall be considered unseasonable and requires approval by Engineer.
 4. If special conditions exist which warrant installation outside normal planting seasons, Contractor shall submit written request to Engineer describing conditions and stating proposed variance. Approval to plant under such conditions shall in no way relieve Contractor from warranty.
- D. Plant when weather and soil conditions are suitable in accordance with industry practices.
- E. Protection:
1. Protect seeded areas against damage by trespass and other work until substantial completion.
 2. Protect seeded areas from nuisance species as necessary.
 3. Replace, repair, or replant lawn areas which are damaged.
 4. Where planting occurs in close proximity to other site improvements, protect features prior to commencing Work. Any items damaged due to planting operations shall be repaired to their original condition.

1.7 WARRANTY:

- A. During 1 year correction period replace lawn areas which have died, are in dying condition, or which has failed to germinate or flourish so its usefulness or appearance has been impaired.
1. Replacement and Damages:
 - a. Decisions of Engineer for required replacements are final and binding upon Contractor.
 - b. Contractor is responsible for repairing damage to property caused by defective workmanship and materials.
 2. Exclusions:

- a. Contractor is not liable for replacement cost of plants damaged by deicing compounds, fertilizers, pesticides or other materials not specified in Contract Documents or not applied by Contractor, by relocating or removal by others, by acts of God, or by vandalism, and losses due to curtailment of water by local authorities.
3. Inspection of Maintenance:
- a. During correction period, Contractor shall, periodically inspect watering, cultivation, and other maintenance operations by property owners, and notify Owner of methods, practices or operations considered unsatisfactory and not in accordance with good horticultural practices.
 - b. Failure of Contractor to inspect or report shall be construed as acceptance of property owner’s maintenance operations, and Contractor shall not claim or assert defects which may later develop are result of such methods or practices or operations.
 - c. Owner will notify Contractor when maintenance is to be performed so Contractor may observe maintenance procedures.

PART 2 - PRODUCTS

2.1 PLANTS:

A. Grass

- 1. Provide seed mixes high in germinating value and latest year’s crop mixture as follows:

Name	Minimum Proportion by Weight	Percent Purity	Percent Germination
Kentucky bluegrass	20 percent	87 percent	85 percent
Merion Kentucky bluegrass	20 percent	87 percent	85 percent
Red Chewings Fescue	45 percent	98 percent	85 percent
Manhattan Rye	15 percent	98 percent	90 percent

2.2 PLANTING MATERIALS:

A. Topsoil:

- 1. Obtained from natural well drained areas, and be fertile, friable soil, clean of undesirable materials such as plants, weeds, roots, stalks, stones, and other debris.

2. Existing topsoil may be used if Engineer determines soil is suitable and of sufficient quantity. Topsoil must meet ASTM standard 5268 Standard Specification for Topsoil Used for Landscaping Purposes.
3. Acidity range of pH 5.0 and pH 7.0 and shall contain no less than 4 percent organic matter as determined by loss on ignition of moisture free samples dried at 212 degrees F.

B. Soil Amendments:

1. Granular Fertilizer:

- a. Commercial type, uniform in composition, free flowing, conforming to state and federal laws, and suitable for application with equipment designed for that purpose.
- b. Contain minimum basis percentage by weight:
 - (1) Nitrogen: 6 percent, 1/4 of nitrogen shall be in form of nitrates, 1/4-inch form of ammonia salts, and 1/2-inch form of organic nitrogen.
 - (2) Phosphorus: 24 percent, available phosphoric acid shall be derived from super phosphate having minimum analysis of 20 percent available phosphate.
 - (3) Potash: 24 percent, potash shall be in form of sulphate or potash.
 - (4) Balance of fertilizer shall be materials usually present in such products, free from dust, sticks, sand, stone, and other debris.
 - (5) Ground agricultural limestone containing not less than 85 percent total carbonates.
- c. Coordinate N-P-K requirements with agronomic soil testing lab recommendations.

2. pH Adjusters:

- a. Lime: Ground dolomite limestone, containing not less than 85 percent calcium and magnesium carbonates, 50 percent passing through 100 mesh screen, 98 percent passing 20 mesh screen.
- b. Elemental sulphur: Finely ground horticultural grade material containing at least 95 percent purity.

C. Water:

1. Obtain from fresh water sources and free from injurious chemical or other toxic substances harmful to plant life. Contractor to provide written authorization from owning authority if withdrawing water from a public water distribution system.
2. No water which is brackish may be used.

PART 3 - EXECUTION

3.1 PREPARATION:

- A. Remove existing sand or temporary restoration material in areas to be restored.
- B. Compact existing subgrade to at least 95% standard proctor density to minimize differential settlement of restored areas.

3.2 INSTALLATION:

A. Topsoil/Finish Grading:

1. Do not place or work topsoil in frozen or muddy condition.
2. Finish grade is established final grade. Grades not otherwise indicated are uniform levels or slopes between points where elevations given or between such points and existing finished grades.
3. Place a minimum of at least 4 inches of topsoil material in areas to be restored. Sufficient topsoil to be placed to ensure material settling does not result in restored areas being lower than existing grade. Mound topsoil as necessary to account for any settling that may occur.

B. Preparation:

1. Place grass seed, fertilizer, and other specified materials at a rate meeting manufacturer instructions and as specified herein.
2. Protect seeded areas with straw until germination of grass is fully established.
3. Planting Season: Conform to planting seasons.
4. Preparation of Planting Areas: Cover surrounding turf (if existing) to protect turfed areas that are to be trucked or hauled over and upon which soil is to be temporarily stocked.

C. Watering:

1. Water immediately after installation.
2. Water during period of temporary maintenance.

3.3 CLEAN UP AND PROTECTION

- A. Remove excess and waste material daily.
- B. Remove soil or similar material brought onto paved areas, keeping areas broom clean.
- C. Upon completion of planting, remove excess soil, stones, and debris and dispose of off-site.
- D. Damage to existing landscape, pavements, or other site features as result of Work shall be repaired to its original condition by the Contractor at no additional cost.
- E. Protect landscape Work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods.

3.4 MAINTENANCE

- A. Temporary Maintenance:
 - 1. Maintain plant material until substantial completion as defined in section 3.06. Acceptance of this specification.
 - 2. Remove and replace dead and unacceptable grass as the condition becomes apparent.
 - 3. Place additional topsoil and seeding in areas that fail to germinate or where grass has died in order to provide a fully restored site.

3.5 ACCEPTANCE:

- A. Preliminary Planting Acceptance:
 - 1. Notify Engineer at conclusion of planting operations so Engineer can determine substantial completion by field inspection.
 - 2. Substantial completion requires:
 - a. Plant material conforms to Contract Documents with respect to quality and location, except those items accepted or revised in field by Engineer.
 - b. Plant material shall be in healthy condition as defined under warranty.
- B. Final Planting Acceptance:
 - 1. Final planting acceptance shall be granted after completion of replacement operations required to fulfill guarantee.

2. On or about expiration of 1 year correction period, follow-up inspection will be made to determine replacements required to be made by Contractor in accordance with provisions of these Specifications. Engineer will document findings in field report, and forward copies to Contractor. Items identified for replacement will be tagged during inspection with plastic flagging.
3. Upon completion of replacement program, Engineer will inspect to determine acceptability of required replacements. If acceptable, Engineer shall notify Contractor in writing, of final acceptance of Work.

3.6 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

SECTION 33 05 12

HORIZONTAL DIRECTIONAL DRILLING

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This Specification covers the installation of water service pipe by horizontal directional drilling (HDD) for residential connections and local road crossings. Horizontal directional drilling is a trenchless excavation method which is accomplished in two phases. The first phase consists of drilling a pilot hole along a designed directional path. The second phase consists of pulling the pipe into the pilot hole. Horizontal directional drilling is accomplished using a specialized horizontal drilling rig with ancillary tools and equipment.
- B. The proposed HDD installations will be part of a lead or galvanized steel pipe replacement program. Addresses of houses where pipes are to be replaced will be provided to the Contractor prior to the start of work and as work progresses.

1.2 SCOPE OF WORK:

- A. The work shall be performed in accordance with the Contract Documents and shall include all labor, equipment, and materials necessary to accomplish, but not limited to, the following tasks:
 - 1. Transportation of all equipment, labor, and material to and from each property.
 - 2. Setup of horizontal drilling rig or rod pusher, and other ancillary equipment at each property.
 - 3. Drilling the pilot hole along the alignment as defined for the replacement. Using a downhole guidance system, maintain survey control along the entire alignment to ensure compliance with specified tolerances. Survey control shall be by inclination and azimuth of drill bit. In addition, a separate surface tracking system shall be constantly monitoring the depth, location, pitch and roll of the drill bit throughout the full depth and length of the alignment.
 - 4. Reaming the pilot hole, if needed, to a diameter suitable for installation of the fabricated carrier pipe pull section(s).
 - 5. Installation of the pipe section(s) including any necessary joining and capping for the final connections. Final connections of pipeline installations will be done by the Contractor.

6. Transportation and proper offsite disposal of all excess drilling fluid and cuttings.
7. Clean-up and restoration of all work areas.

1.3 REFERENCES:

- A. American Petroleum Institute (API): RP 13B-1, 1990. Standard Procedure for Field Testing Water-Based Drilling Fluids, First Edition, Dallas, Texas
- B. American Society of Civil Engineers (ASCE):
 1. ASCE Manuals and Reports on Engineering Practice No. 108, Pipeline Design for Installation by Horizontal Directional Drilling, Second Edition (2014)
 2. Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, ASCE/CI 38-02
- C. American Society for Testing and Materials (ASTM): ASTM F2620 – Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
- D. Common Ground Alliance (CGA): CGA Best Practices - Version 14.0 “The Definitive Guide for Underground Safety and Damage Prevention”
- E. HDD Consortium: Horizontal Directional Drilling Good Practices Guidelines, 3rd Edition

1.4 TEMPORARY WORKSPACE AND ACCESS:

- A. Workspace and access are defined by the Engineer.

1.5 QUALITY ASSURANCE:

- A. HDD Firm shall have been performing this specialty work for a minimum of 2 years and completed 5 projects of similar complexity successfully within that period.
- B. HDD operations shall be performed under the full-time supervision of a drill rig superintendent having the following minimum requirements:
 1. Not less than five (5) years experience in HDD projects of similar type and equal complexity as the proposed HDD project.
 2. Successfully installed a minimum of 500 water service lines ranging from ¾” to 2” in diameter.
 3. Trained and certified at a minimum in the following:
 - a. OSHA 10-Hour Construction Industry
 - b. First Aid and CPR

- c. Traffic Protection
 - d. Electrical Awareness
 - e. Equipotential Bonding and Grounding
- C. Horizontal directional drilling shall be conducted in accordance with these specifications and the standards of care for the industry. Refer to the Horizontal Directional Drilling Good Practice Guidelines and the CGA Best Practices.

1.6 SUBMITTALS:

- A. Submit the following in accordance with Section 01 33 00:
- 1. The following information shall be submitted:
 - a. Qualifications of the HDD Firm.
 - b. Qualifications of the HDD Firm's proposed drill rig superintendent.
 - c. Qualifications of the HDD rig operator.
 - d. Safety plan including company safety manual and emergency procedures.
 - 2. All procedures, descriptions, and shop drawings shall be submitted not less than 2 weeks prior to commencing any horizontal directional drilling activities at each site. These include but are not limited to:
 - a. A detailed schedule and description of procedures for pipe delivery, pilot hole drilling, reaming, testing and pull back.
 - b. Traffic control plan.
 - c. Cut sheet of pilot hole location instrumentation/guidance systems.
 - d. Cut sheet of the drill rig or rod pusher and its pullback and torque capacities.
 - e. Method of collection, permits required, and location for disposal of all drilled spoils and excess drilling mud.
 - f. Layout drawings showing: placement of pipe adjacent to streets; locations of topside equipment within the rig side and pipe side workspace.
 - 3. During the HDD operations the Contractor shall submit daily progress reports to the Engineer. The report shall include the work performed, potential conflicts with other aspects of the project, and the progress at the end of each day.
 - 4. Construction Contingency Plan specifying the methods and procedures to overcome construction hazards, such as, but not limited to: damage to all adjacent

utilities (i.e., water, drainage); encountering subsurface obstructions during pilot hole drilling and pipeline pull-back; pipeline misalignment (horizontal/vertical); drilling mud loss, hole collapse, pipe collapse, sinkholes in the overburden soils.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Provide ¾" to 2-inch Type K copper pipe as required or as directed by the Engineer.
- B. All other materials required for construction shall also be supplied by Contractor.

2.2 WATER:

- A. The Contractor shall be responsible for obtaining any water required. Provide documentation from the water supplier authorizing use or withdrawal of the water. Contractor is responsible for any payments required for the use and withdrawal of water.

2.3 INSTRUMENTATION:

- A. Contractor shall at all times provide and maintain a tracking system which will accurately locate the pilot hole, measure drill string axial and torsional loads, and measure drilling fluid discharge rate and pressure. The Engineer shall have access to these instruments and their readings at all times.

PART 3 - EXECUTION

3.1 PROTECTION OF UNDERGROUND UTILITIES:

- A. Contractor shall undertake the following steps prior to commencing drilling operations in a location which may contain underground facilities.
 - 1. Contact 811, Michigan No Dig for utility markouts prior to the start of work.
 - 2. Positively locate and stake all existing lines, cables, or other underground utilities including exposing any facilities which are located within 10 feet of the designed drilled path.
 - 3. Modify drilling practices and downhole assemblies to prevent damage to existing utilities. Where in doubt as to locations of buried structures, conduct additional potholing as required to identify the location of existing infrastructure.
- B. The Contractor shall, at no additional cost to the Owner, be responsible for repairing any utility or structure which is damaged during construction activities.

3.2 PILOT HOLE:

- A. Conduct drilling operations using materials and equipment in accordance with HDD Consortium, Horizontal Directional Drilling Good Practices Guidelines. Operator's log book shall include as a minimum:
 - 1. Pipe installation number or street address.
 - 2. Depth of bore path start, midway, and finish.
 - 3. Pitch and steering commands required.
 - 4. Notes including obstructions or other performance observations.
- B. Record Drawing: Contractor shall provide a drawing and a tabulation of coordinates, referenced to the drilled entry point, which accurately describes and documents the location and type size of each pipeline installed by HDD methods.

3.3 PULL BACK:

- A. Pull Back: The pipe shall be pulled back in a continuous non-stop operation in order to prevent the pipe from seizing.
- B. Pulling Loads: The maximum allowable tensile load imposed on the pipe pull section shall be equal to 50 percent of the specified minimum yield strength of the pipe.
- C. Torsional Stress: A swivel shall be used to connect the pull section(s) to the reaming assembly to minimize torsional stress imposed on the section(s).
- D. Pull Section Support: The pull section(s) shall be supported throughout the entire pull back procedure so that the pull section(s) move freely above and below ground such that the pipe is not damaged.
- E. External Collapse Pressure: The pull section shall be installed in the reamed hole in such a manner that external pressures are minimized. Any damage to the pipe resulting from external pressure during installation shall be the responsibility of Contractor.

3.4 DRILLING FLUID CONTROLS:

- A. Composition: The composition of all drilling fluids proposed for use shall be in accordance with API Specification 13A; API Recommended Practice 13B; and API Bulletin 13D and submitted. No fluid shall be utilized that does not comply with permit requirements and environmental regulations.
- B. Recirculation: May be used at the Contractor's discretion, but is not required.
- C. Disposal: Disposal of excess drilling fluids shall be the responsibility of Contractor and shall be conducted in compliance with all environmental regulations, right-of-way and

workspace agreements, and permit requirements. Procedures for the disposal of drilling fluids shall be submitted to the Engineer for review.

- D. Inadvertent Returns: Contractor shall employ his best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost, Contractor shall take steps to restore circulation. Inadvertent surface returns of drilling fluids shall be immediately contained with hand placed barriers (i.e. hay bales, sands bags, silt fences, etc.) and collected using pumps as practical. If the amount of the surface return is not great enough to allow practical collection, the affected area shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally.
- E. Small collection sumps less than 5 cubic yards may be used if the amount of surface return exceeds that which can be contained with hand placed barriers. If the amount of surface return exceeds that which may be contained and collected using small sumps, drilling operations shall be suspended until surface return volumes are controlled.
- F. Inadvertent Depressions, Sinkholes, Loss of Ground or Support for Adjacent Utilities: Contractor shall be responsible for backfilling all lost ground and adjacent streets such that emergency vehicle access is maintained 24-hours a day. Utilities shall be supported to maintain their function.

3.5 JOINING PIPE SECTIONS

- A. Contractor will not be permitted to use multiple segments of pipe to complete the new service line installation. Contractor shall use a single continuous segment of copper piping to complete all water service line replacements.

3.6 FIELD TESTING:

- A. Keep detailed records where provided by independent testing agency; otherwise, all testing shall be done in the presence of the Engineer.
- B. Drilling mud testing shall be in general accordance with the equipment and procedures identified in API RP13B.

3.7 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

SECTION 33 10 00

WATER UTILITIES AND SERVICE CONNECTIONS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Pipe and fittings for water distribution piping including municipal distribution piping and residential service lines, accessories and appurtenances.

1.2 REFERENCES:

- A. American National Standards Institute (ANSI)
 - 1. NSF Standard 61: Drinking Water System Components – Health Effects
- B. American Society of Mechanical Engineers (ASME):
 - 1. B16.1: Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.
 - 2. B16.18: Cast Copper Alloy Solder Joint Pressure Fittings.
 - 3. B16.22: Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.
- C. ASTM International (ASTM):
 - 1. A53: Standard Specifications for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - 2. A126: Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - 3. A307: Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 - 4. A536: Standard Specification for Ductile Iron Castings.
 - 5. A743: Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
 - 6. B88: Standard Specification for Seamless Copper Water Tube.
- D. American Water Works Association (AWWA):
 - 1. C104/A21.4: Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
 - 2. C105/A21.5: Polyethylene Encasement for Ductile-Iron Pipe Systems.

3. C110/A21.10: Ductile Iron and gray Iron Fittings, 3 Inch Through 48 Inch for Water and Other Liquids.
4. C111/A21.11: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. C116/A21.16: Protective Fusion Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Gray Iron fittings for Water Supply Service.
6. C150/A21.50: Thickness Design of Ductile Iron Pipe.
7. C151/A21.51: Ductile-Iron Pipe, Centrifugally Cast, for Water.
8. C153/A21.53: Ductile Iron Compact Fittings, 3-Inch through 24-Inch and 54-Inch Through 64-Inch for Water Service.
9. C500: Metal-Seated Gate Valves for Water Supply Service.
10. C509: Resilient-Seated Gate Valves for Water Supply Service.
11. C550: Protective Interior Coatings for Valves and Hydrants.
12. C600: Installation of Ductile-Iron Water Mains and Their Appurtenances.
13. C602: Cement-Mortar Lining of Water Pipelines in Place - 4 in. and Larger
14. C651: Disinfecting Water Mains
15. C800: Underground Service Line Valves and Fittings.
16. C810-17: Replacement and Flushing of Lead Service Lines

E. United States Environmental Protection Agency (EPA)

1. EPA Guidance: Steps to Lead Safe Renovation, Repair and Painting

F. Factory Mutual (FM):

1. FM Approved: Factory Mutual Approval Guide.

G. NSF International (NSF):

1. 61: Drinking water system components Health effects

1.3 DEFINITIONS:

- A. Appurtenances: Additional piping items as required to provide a complete piping system suitable to convey water as specified and intended. These items may or may not be specified, but are necessary to complete the piping system.

1.4 SUBMITTALS:

- A. Submit the following in accordance with Section 01 33 00.**
 - 1. Pipe materials.**
 - 2. Pipe fittings.**
 - 3. Pipe couplings.**
 - 4. Pipe thrust restraint.**
 - 5. Valves.**
 - 6. Accessories.**
 - 7. Appurtenances.**
 - 8. Water purity test results indicating chlorine residual.**
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.**
- C. Instructions: Provide manufacturer's installation instructions for pipe, valves, curb stops and boxes, corporation stops, and copper water service piping.**
- D. Field Test Reports: Provide results for hydrostatic and bacteriological tests.**
- E. Project Record Documents: Provide actual locations of piping mains, valves, connections, curb boxes, corporation stops, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.**
- F. Health and Safety Plan for all work occurring on site. Plan should include information related to site safety protocols, confined space entry, emergency conditions, and general conformance with OSHA and MiOSHA requirements.**

1.5 SPARE PARTS:

- A. Comply with the requirements specified in Section 01 61 00.**

1.6 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.**
- B. Perform Work in accordance with Owner standards.**
- C. Contractor shall perform all service line replacement work in accordance with AWWA C810-17: Replacement and Flushing of Lead Service Lines.**

- D. Valves: Manufacturer's name, UL/FM and pressure rating marked on valve body.
- E. Materials used shall comply with American Iron and Steel (AIS). Materials specified that do not comply with AIS shall not be used.

1.7 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01 66 10.
- B. During loading, transportation and unloading, prevent damage to pipes and fittings. Load and unload each pipe under control at all times. Under no circumstances will a dropped pipe be used unless inspected and accepted by Engineer. Place skids or blocks under each pipe in the shop and securely wedge pipe during transportation.
- C. Deliver and store valves in shipping containers with labeling in place.

1.8 WARRANTY:

- A. Provide standard product warranties for piping materials and as required by Owner.

PART 2 - PRODUCTS

2.1 WATER PIPE:

- A. General:
 - 1. Fittings: Suitable for and compatible with pipe material and class with which they are used.
 - 2. All material for watermains shall be NSF/ANSI 61 compliant.
- B. Ductile Iron Pipe and Fittings:
 - 1. Manufacturers: U.S. Pipe, Clow, American, or acceptable equivalent product.
 - 2. Thickness design conforming to AWWA C150 / A21.50.
 - 3. Pipe: AWWA C151 / 21.51, Pressure Class 350 for mechanical and push on joints in buried service. Minimum thickness Class 52.
 - 4. Fittings: Ductile iron, AWWA C110 / A21.10 or C153 / 21.53, match wall thickness of adjacent pipe.
 - 5. Joints: AWWA C111 / A21.11, rubber gasketed for push-on or mechanical joint.
 - 6. Lining: Double thickness cement mortar conforming to AWWA C104 / 21.4.

7. Exterior Coating: Asphaltic coating, AWWA C151 / A21.51, for buried pipe and fittings.
8. Jackets: AWWA C105 / A21.5 polyethylene jacket.
9. Bolts and Nuts:
 - a. Tee head bolts and hexagonal nuts: AWWA C111 / A21.11.
 - b. Number, size, and length: AWWA C111 / A21.11.
 - c. Material: Type 316 stainless steel.

C. Copper Tubing

1. ASTM B 88, Type K, annealed, supplied in a continuous coil with no joints if possible, and complete with, if joints are required, compression type flared joint couplings.
2. Fittings: ASME B16.18, cast copper, or ASME B16.22, wrought copper.
3. Joints: Compression connection or AWS A5.8, BCuP silver braze.
4. Only lead-free solder shall be used.
5. Working Pressure: Minimum of 100 psi.

2.2 VALVES:

A. Gate Valves:

1. Manufacturers: Mueller or East Jordan Iron Works.
2. Valves to conform to NSF Standard 61.
3. AWWA C509 or C515, iron body, bronze trim, non-rising stem with square nut and right-hand open direction.
4. Single wedge meeting ASTM A536 with resilient seat.
5. Mechanical joint ends.
6. Conventional packing or double O rings. Valves capable of being repacked or O-rings replaced while under pressure.
7. Type 316 stainless steel bolts and bronze nuts for stuffing box follower.
8. Internal and external wetted parts to be coated with a fusion bonded epoxy in accordance with AWWA C550.

9. Provide one operating wrench of length to operate deepest valve.

B. Ball Valves:

1. Manufacturers: Nibco, NCI, or acceptable equivalent product.
2. Class 600, 1,000 psi WOG rated full port ball type valves, each complete with a forged brass or bronze body with compression inlet and outlet ends, forged brass cap and blowout-proof stem, solid forged brass Teflon coated ball, rubber seats and stem seals, and a removable lever handle.
3. Valves shall be up to 2 inches. Ball valves greater than 2 inches are unacceptable.

2.3 MANUAL OPERATORS:

- A. Operator force not to exceed 40 lbf under any operating condition, including initial breakaway. Gear reduction operator when force exceeds 40 lbf.
- B. Operator to be self-locking type or be equipped with self-locking device.
- C. Worm and gear operators to be one-piece design worm-gears of gear bronze material. Worm hardened alloy steel with thread ground and polished. Traveling nut type operators to have threaded steel reach rods with internally threaded bronze or ductile iron nut.
- D. Buried service operators on valves shall have a 2-inch AWWA operating nut. Enclose moving parts of valve and operator in housing to prevent contact with the soil.
- E. Buried valves shall have extension stems, bonnets, and valve boxes.

2.4 VALVE BOXES:

- A. Manufacturers: Tyler Pipe or acceptable equivalent product.
- B. Provide cast-iron valve boxes, rated for vehicular traffic.
- C. Extension type with slide-type adjustment, flared base and 3/16-inch minimum thickness of metal.
- D. Cast the word "WATER" in cover. Adapt box length, without full extension, to depth of cover required over pipe at valve location.

2.5 BEDDING AND COVER MATERIALS:

- A. As specified in Section 31 23 33.

2.6 THRUST RESTRAINT:

- A. Mechanical Joint Restraint

1. **Manufacturers:** Ebba Iron Megalug or acceptable equivalent product.
 2. **Restraint devices for pipe consisting of multiple gripping wedges incorporated into a follower gland meeting requirements of AWWA A21.10.**
 - a. **Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, retaining full mechanical joint deflection during assembly and allowing joint deflection after assembly.**
 - b. **Provide actuation of the gripping wedges ensured with torque limiting twist off nuts.**
 - c. **Provide restraint devices listed by UL, 3 inch through 24 inch size and designed by Factory Mutual, 3 inch through 12 inch size.**
 3. **350 psi working pressure rating with 2 to 1 minimum safety factor**
 4. **Gland body, wedges and wedge actuating components: Grade 65-45-12 ductile iron in accordance with ASTM A536.**
 5. **Mechanical joint restraint incorporated into the design of the follower gland.**
- B. Push-On Restrained Joint Pipe: Provide joint restraint and conforming joint to AWWA C111/21.11, fabricated to be easily disassembled. Provide assembly and disassembly kits.**

2.7 MECHANICAL COUPLINGS:

- A. Manufacturer: Smith-Blair or acceptable equivalent product.**
- B. Dresser Style 38, long sleeve unless otherwise shown or specified. Pressure rating at least equal to that of associated pipeline.**

2.8 ACCESSORIES:

- A. Tapping Sleeves: Ductile- or cast-iron, split-sleeve type with flanged or grooved outlet, and with bolts, follower rings and gaskets on each end of sleeve suitable for maximum working pressure of 150 psi. Bolts shall be Type 304 stainless steel with square heads and hexagonal nuts. Longitudinal gaskets and mechanical joints with gaskets shall be as recommended by manufacturer of sleeve. Comply with AWWA C223**
- B. Tapping Valves: Provide tapping valves that conform to gate valves, specified herein. Provide tapping valves suitable for installation with tapping sleeves and pipe used, designed for minimum water working pressure of 150 psi, and have clear waterway equal to full nominal diameter of valve. Ends to comply with ANSI B16.1, Class 125.**
- C. Tapping saddles shall have ASTM A395 ductile iron body and Type 316 stainless steel straps and hardware.**

D. All new fittings and accessories shall be 100% lead-free.

E. Corporation Stops

1. Manufacturers: Ford Meter.
2. Standard corporation stop thread conforming to AWWA C800 on the inlet end, with compression pattern flared tube coupling.

F. Service (Curb) Stops

1. Manufacturers: Ford Meter.
2. Water-works inverted-ground-key type, oval or round flow way, tee handle, without drain.

G. Tapping Saddles

1. For 4" diameter and smaller water mains.
2. Manufacturers: Smith-Blair or approve equal.
3. Saddle will comply with AWWA C800 and NSF61. Body shall be ductile iron meeting ASTM A536. Outlet to be threaded NPT and gasket shall be Buna-N conforming to NSF 61.
4. Single mounting straps shall be at least 2" wide. Multiple straps shall each be 1- $\frac{1}{2}$ " wide.
5. Bolts, nuts and washers shall be Type 304 stainless steel coated to protect from galvanic corrosion
6. Pressure rating of saddle shall meet or exceed rating of existing or new piping.

H. Parts shall be bronze with female compression-pattern flared tube coupling design for hydrostatic test pressure at least 200 psi.

I. Service Boxes: Cast iron box by Tyler Pipe. Service boxes shall be extension type of length required for depth of line, with either screw or slide-type adjustment. Boxes shall have housings of sufficient size to completely cover service stop or valve and shall be complete with the word "WATER" cast into the cover.

2.9 DISINFECTION CHEMICALS:

A. Refer to Section 33 13 00.

2.10 APPURTENANCES:

- A. Provide appurtenances for a complete piping system suitable for operation, and in conformance with Project Documents.

2.11 SHOP PAINTING/COATINGS:

- A. Unless noted otherwise, provide standard manufacturer paint and coatings for piping, valves, and accessories to prevent corrosion for the life of the component.

2.12 SHOP TESTING:

- A. Test pipes, valves, and applicable accessories per manufacturer requirements, and as required by referenced Standards.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Verify existing conditions.
- B. Mark pipe and fittings "Rejected" and remove from site when cracked or has received a severe blow.

3.2 PREPARATION:

- A. Contact 811, Michigan No Dig for utility markouts prior to the start of work.
- B. Ream pipe and tube ends and remove burrs.
- C. Remove scale and dirt, on inside and outside, before assembly.
- D. Prepare pipe connections to equipment with flanges or unions.
- E. Machine cut with milling type cutters, knives, or saws. Chamfer cut ends of cut segments. Cutting by means of snap cutters, torch, or hammer and chisel is not allowed. Examine for possible cracks after cutting. Reject cracked sections of pipe.
- F. Excavate pipe trench in accordance with Section 31 23 33 for work of this Section. Hand trim excavation for accurate placement of pipe and to remove soil from other nearby utilities.

3.3 WATER PIPE INSTALLATION:

- A. Maintain separation of water main from sewer as follows:
 - 1. Parallel Installation

- a. Under normal conditions water mains shall be laid at least 10 feet horizontally from a sewer or sewer manhole. The distance shall be measured edge-to-edge.
- b. Under unusual conditions when local conditions prevent a horizontal separation of 10 feet the water main may be laid closer to a sewer or sewer manhole provided that the bottom (invert) of the water main shall be at least 18 inches above the top (crown) of the sewer;
- c. Where this vertical separation cannot be obtained, the sewer shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling; and
- d. The sewer manhole shall be of watertight construction and tested in place.

2. Crossing

- a. Under normal conditions water lines crossing sewers shall be laid to provide a separation of at least 18 inches between the bottom of the water line and the top of the sewer whenever possible
- b. Under unusual conditions when local conditions prevent a vertical separation described, the following construction shall be used:
 - (1) Sewers passing over or under water mains shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling;
 - (2) Water lines passing under sewers shall, in addition, be protected by providing:
 - (a) A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water line;
 - (b) Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the waterline; and
 - (c) That the length of the water line be centered at the point of the crossing so that joints shall equidistant and as far as possible from the sewer.
- c. No water pipes shall pass through or come in contact with any part of a sewer manhole.

B. Before assembly, remove dirt and chips from inside pipe and fittings.

C. Install ductile iron piping and fittings to AWWA C600.

D. Joints and Couplings

1. Push-on Joints

- a. Insert gasket into groove bell. Apply thin film of nontoxic gasket lubricant over inner surface of gasket in contact with spigot end.
- b. Insert chamfered end into gasket. Force pipe past it until it seats against socket bottom.

2. Mechanical Joints

- a. Wire brush surfaces in contact with gasket and clean gasket.
- b. Lubricate gasket, bell, and spigot with soapy water.
- c. Slip gland and gasket over spigot, and insert spigot into bell until seated.
- d. Seat gasket and press gland firmly against gasket.
- e. After bolts inserted and nuts made finger-tight, tighten diametrically opposite nuts progressively and uniformly around joint by torque wrench.

E. Form and place concrete for thrust blocks at each fitting or change of direction of pipe main.

F. Establish elevations of buried piping to ensure not less than 4-feet of cover.

G. When pipe laying not in progress, close open ends of pipe with temporary watertight plugs. If water in trench, do not remove plug until danger of water entering pipe passed.

H. Backfill trench in accordance with Section 31 23 33

3.4 VALVE INSTALLATION:

A. Set valves on solid bearing.

B. Center and plumb valve box over valve. Set box cover flush with finished grade.

C. Install tapping sleeves and tapping valves in accordance with manufacturer's recommendations.

D. Install valves according to applicable AWWA Standards.

E. Set box so top is flush with finished surface and so box does not bear on valve, or pipe.

3.5 SEWER LATERAL INSPECTION

- A. Contractor shall be required to video document the condition of each residential sewer lateral prior to the start of any service line replacement or related work.
- B. Documentation may be made from the house to the connection at the municipal sewer using a lateral push camera or the inspection may be made from the municipal sewer to the house using a lateral camera launched from a CCTV inspection camera located within the municipal sewer. Inspections starting at the house will be completed from a cleanout outside of the house. The inspection will be completed from the municipal sewer to the house if no external cleanout exists.
- C. The camera equipment will be provided with a suitable distance-reading device to measure the location of the camera in the lateral, to an accuracy of $\pm 0.5\%$ of the length of the inspection.
- D. Inspection video shall be a high-definition, color inspection MPEG for verification of existing internal sewer line conditions. The camera shall be provided with a light to adequately illuminate the interior of the pipeline during inspection.
- E. The Contractor shall utilize a camera that has sufficient cable to provide a complete and continuous inspection in a single direction. No breaks, stops or pauses of the video during recording will be permitted.
- F. If the inspection cannot be completed in a single direction due to an existing defect in the pipeline or because of bends or changes in direction that do not allow the camera to pass, a reversal inspection from the opposite end of the sewer lateral will be attempted.
- G. Contractor will only be required to video document the condition of the sewer lateral. Defect coding of observations made during the documentation process are not required.
- H. Contractor shall direct the camera through the lateral at a rate that will permit the condition within the lateral to be fully observed. Rate of inspection shall not exceed 0.50 ft / sec (30 ft / min).
- I. The Contractor will notify the Engineer immediately when emergency condition such as a collapsed, surcharged or blocked sewer is observed.
- J. Removal of Equipment that Becomes Stuck in the Sewer
 - 1. Contractor is fully responsible for the inspection of the lateral. The Contractor should terminate the inspection if, in the Contractor's opinion, the camera may become lodged in the pipe due to a defect, change in direction, or other reason. The Contractor will be responsible to remove equipment stuck in the lateral at no additional cost to the Owner.
 - 2. Notify the Engineer immediately if equipment becomes lodged within the sewer lateral.

3. Contractor shall initially attempt to remove such equipment for at least 1 hour. Following this initial attempt, advise the Engineer if the equipment cannot be freed and mark the position on the surface over the sewer where the equipment is lodged.
 4. The Engineer will communicate to the property owner and the Owner, that the equipment cannot be freed and the need to arrange to have an excavation made to remove the equipment. The Contractor will be responsible for coordinating recovery efforts with the property owner and the Engineer. The Contractor will arrange to have an excavation made to remove the equipment within 1 hour after ending an initial attempt at removing the equipment without using excavation methods.
 5. Refer to "Sewer Lateral Repair" below for additional information.
 6. Upon removing the equipment and if necessary, repairing the lateral, Contractor shall repeat inspection of the lateral in accordance with the Contract Documents. No additional compensation will be made for reinspection of the sewer line as a result of the Contractor's equipment becoming stuck, and subsequently being removed, from the sewer lateral.
 7. The Contractor shall not receive any additional compensation for equipment recovery and / or replacement costs, equipment and labor downtime, other incidental costs, work delays, re-mobilization, or re-scheduling of work should the equipment become stuck.
- K. Submit video documentation in an MPEG format on a weekly basis and within 10 working days of inspection. Failure to submit video documentation will result in payment for this work item being withheld from the Contractor's payment application with no additional compensation being made by the City for withholding payments to the Contractor. Submission of poor quality documentation that does not allow for reasonable viewing, in the opinion of the Engineer, of the conditions within the sewer will be rejected. The Contractor will be required to re-televiser and document the condition of the sewer lateral with no additional compensation being made for this rework.
- L. Video files shall be submitted to the Engineer on an external hard drive or data stick. Inspection video will be saved with the file name of "XXX_YYYY.Z" where:
1. XXX represents the house number
 2. YYYY represents the street name. Use only a 2-letter acronym to designate the word "Street", "Avenue", "Road", etc. No space(s) will be placed in the street name.
 - a. St – Street
 - b. Av – Avenue

- c. Rd – Road
 - d. Bd – Boulevard
 - e. Ay – Alley
 - f. Wy - Way
3. Z represents the video number. Use “1” for the initial inspection effort and “2” for the subsequent reversal inspection, if necessary.
4. Example: Complete video inspection of the sewer lateral at 123 Main Street. File name will be “123_MainSt.1”.

Example: Partial video inspection of the sewer lateral at 123 Main Street where the initial inspection was abandoned because of a defect in the line. File name will be “123_MainSt.1” for the initial inspection video file and “123_MainSt.2” for the subsequent reversal inspection video file.

3.6 SEWER LATERAL REPAIR

- A. Damaged segments of the residential sewer lateral will be replaced as exposed during the service line replacement work.
- B. The lateral will be repaired using SDR 26 PVC pipe and a flexible Fernco coupling to connect the new piping to existing.
- C. New piping will be of the same nominal diameter as existing.
- D. Prior to final connection, Contractor will flush the sewer line to remove backfill and debris that may have entered the sewer during repair of the sewer.
- E. Repair, backfill, and surface restoration will be completed in the same day.
- F. The Contractor will not receive compensation for repair of sewer lateral piping observed during the lateral inspection to be in a structurally competent condition that is damaged by the Contractor during the replacement of water service lines.

3.7 WATER SERVICE LINE CONNECTIONS AND REPLACEMENT:

- A. Residential Notifications
 - 1. The Engineer will coordinate the initial notification to homeowners whose service line were determined to be lead, galvanized or other non-copper material and will need to be partially or completely replaced. This initial notification will request permission to replace the service line.

2. Up to two subsequent follow-up notification efforts will be made by the Engineer, as necessary, in an attempt to obtain authorization to replace the service line. The Engineer will document the efforts to obtain the authorization.
 3. The Contractor is required to provide support to the Engineer, as necessary, to obtain authorization to replace the service line.
- B. The Contractor shall coordinate work with the Engineer and local residents in order to minimize disruptions to residents and provide as much advance notice as possible with regard to upcoming work.
- C. The Contractor will be responsible to document pre-construction conditions at each work site.
- D. Service Line Replacement – General
1. Definitions
 - a. Complete replacement: Replacement of the entire service line, including curb stop and box, from the corporation stop at the municipal water main to the existing curb stop and from the existing curb stop to the water meter inside the residence.
 - b. Partial replacement, public side: Replacement of the entire service line, including curb stop and box, from the corporation stop at the municipal water main to the existing curb stop.
 - c. Partial replacement, private side: Replacement of the entire service line, including curb stop and box, from the existing curb stop to the water meter inside the residence.
 2. The Engineer will provide the Contractor with a database of information collected during the Phase V. This database will provide guidance to the Contractor regarding the extent, full or partial replacement, of the service line replacement work to be completed.
 3. Prior to starting the replacement work, the water supply to the service line and the residence shall be shut off to avoid release of particulate lead into the house caused by vibration of the service during any excavation. The service line to be removed shall be isolated by shutting off appropriate valves at each end of the area to be removed.
 4. Saw cut square and remove existing concrete or bituminous material as necessary or directed by the Engineer to facilitate service line replacement. Sidewalks and driveways, as applicable, will be cut at the nearest construction or control joint.
 5. Contractor shall utilize appropriate trench and excavation shoring.

6. Contractor shall protect existing utilities and sewer lateral during the work. The Contractor will be responsible to repair any utilities damaged or disrupted during the work at no additional cost to the Owner.
7. Contractor is required to remove any fully exposed lead, galvanized or other non-copper service line material and associated fittings that are not scheduled to be used as part of the active service line. Existing service line material and associated fittings not exposed during the service line replacement work may be abandoned in place. Waste material shall not be buried on-site. Contractor is required to remove, transport and properly dispose of all waste materials at an off-site facility. Contractor is responsible for all permits and fees associated with the removal and disposal of waste material.
8. New service line pipe shall be measured and placed with enough material to replace existing service line piping with a single continuous piece of pipe. Contractor shall not use couplings to connect multiple pieces of pipe to form a single run of pipe.
9. Provide water service components, including corporation stop, Type K copper pipe, curb stop, curb box, and required fittings and couplings.
10. New corporation stops, curb stops and curb boxes will be installed. Existing curb stops and boxes will be removed and disposed of by Contractor. Existing corporation stops will be closed and abandoned in place.
11. New water service piping shall be installed from curb box to the house using horizontal directional drilling (HDD) methods. Work from the municipal water main to the curb box shall be completed using open cut and HDD methods as site conditions dictate.
 - a. Contractor may need to use an intermediate HDD launching / receiving pit in the event of an extremely long service line or the presence of existing utilities.
12. New water service piping shall be installed with a minimum of four feet of cover.
13. Contractor shall provide and install fittings as required to make connections between new and existing infrastructure.
14. Contractor shall place a common masonry brick under the new curb stop such that the curb stop rests on top of the brick and is provided with a stable foundation.
15. In order to reduce the amount of material displacement and lead particulate, Contractor shall use a pipe cutter or similar shearing device to cut lead and galvanized service lines as opposed to a tool that would use a sawing or other abrasive action.

16. Contractor shall be equipped with appropriate safety equipment when working with lead and galvanized piping.
17. Wall Penetration
 - a. Contractor will penetrate the wall of the house from the inside to the outside in order to install new service line.
 - b. Upon installation of new service line, contractor will seal the wall penetration with a non-shrink grout to ensure that no groundwater is able to pass through the opening made for the service line. The penetration will be sealed on both the inside and outside of the wall.
18. Install a sampling port upstream of the meter that will allow a water sample to be collected. The port will consist of a tee fitting with a ball valve on the downstream (between the tee and the meter) run side of the tee and another ball valve along the branch side of the tee. Install short segments of copper piping as required to facilitate construction of the sampling port and installation of the ball valves.
19. After all required piping has been replaced and connections have been completed, flush the water from an outside connection (such as hose-bib or hose leading from the house side of the meter installation) to remove any particles in the service line and near point-of-entry. The flushing is best done, if possible and practical, before the meter is connected in the service using a “jumper” or straight pipe in place of the meter. The straight pipe will allow for a higher velocity flush and protects the meter from potential damage from lead pipe and other construction-related fragments. Flush at full velocity for at least 10 minutes.
20. Restoration
 - a. Temporary restoration is completed by contractor(s) when lead, galvanized, or other non-copper material was observed at the curb stop or confirmed inside the home. This observance dictates that the service line be replaced. Areas of temporary restoration will be disturbed only to the extent necessary to complete the work.
 - b. Restoration will not occur until the service line is either partially or completely replaced. Restoration of disturbed areas will be the responsibility of the service line Contractor.

- c. Upon completion of the service line replacement, restoration will consist of crushed stone in areas where roadway, sidewalk and driveway were removed and full depth sand backfill of excavations in grassed areas. Similar materials will be used by the service line Contractor to maintain these areas until final restoration is completed.
 - d. Final restoration of pavement, concrete or grassed areas will be completed under a separate contract. The service line contractor will be responsible to maintain site restoration until the restoration contract is awarded to a new contractor.
21. The Contractor shall not backfill the excavation until the Engineer has recorded a photograph of the service line replacement work and the installation has been approved by the Owner.

E. Permits

- 1. The Contractor will be required to obtain, pay for, and maintain all permits as required by local, state and federal rules, regulations and laws. The City of Flint will not charge a fee for permits. The following permits are either anticipated or may need to be acquired to complete the work.
 - a. **Traffic Control:** Maintenance and rerouting of traffic and closing streets in order to maintain a safe and efficient work area. Contractor will be required to coordinate detours and road closures with the Owner and local emergency services dispatcher on a weekly basis.
 - b. **Plumbing:** Moving the residential water meter more than two feet in any direction inside the home after replacing the private side of the service line.
 - c. **Excavation / Street Cut:** Excavation and street cut work is conducted in a City of Flint street.
 - d. **Water Services**
 - e. **Disposal:** Disposal of waste material.
 - f. **SHPO:** Work occurring in the SHPO Zone of the City. An archaeologist will be on site to inspect excavations in this area. No backfill of the excavation will be completed without the archaeologist's approval. Contractor should plan and price the work in this area accordingly

3.8 LEAD PAINT PROTECTION:

- A. Contractors are required to use lead safe work practices when working in homes constructed before 1978.
- B. All power tools used must be equipped with a high-efficiency particulate air (HEPA) exhaust control to collect dust generated during the completion of the work.
- C. Contractor shall contain the work area to prevent the escape of dust and debris.
 - 1. The work area is the area that may become contaminated during the work. The size of the work area may vary depending on the method used to disturb lead-based paint and the amount of dust and debris that is generated as a result. The work area must be protected by plastic sheeting applied to the floor, ground or other applicable surfaces to prevent contamination of the home or exterior, from dust generated by the work.
 - 2. The EPA's Renovation, Repair and Painting Rule requires that the work area be protected by plastic sheeting that extends a minimum of 6 feet for interior projects and 10 feet for exterior projects in all directions from the location where paint will be disturbed. For exterior renovations within 10 feet of the property line, vertical containment or equivalent extra precautions are required. The Rule further requires that protective plastic sheeting extend far enough from the location of paint disturbance so that all dust or debris generated by the work remains within the area protected by the plastic. The entire portion of the home or exterior that is protected by plastic sheeting, however large, is the work area.
 - 3. Clearly post warning signs and establish barriers (tape, fencing, etc.) to prevent unauthorized persons and pets from entering the work area. Signs should be in the primary language of the occupants and contain the text "Warning - Lead Work Area" and "Poison, No Smoking or Eating".
- D. Work Inside the House
 - 1. Remove all objects from the work area, including furniture, rugs, and window coverings, or cover them with plastic sheeting with all seams and edges taped or otherwise sealed.
 - 2. Cover the floor, including carpet, with taped-down plastic sheeting in the work area 6 feet from the area of paint disturbance or a sufficient distance to contain the dust, whichever is greater. If a vertical containment system is employed, floor covering may stop at the vertical barrier, providing it is impermeable, extends from floor to ceiling, and is tightly sealed at floors, ceilings, and walls.
 - 3. Close windows and doors in the work area. Doors must be covered in plastic sheeting. When the work area boundary includes a door used to access the work area it must be covered in a way that allows workers to pass, but also confines dust

- and debris to the work area. Cover the door with two layers of protective sheeting as described herein:
- a. Cut and secure one layer of sheeting to the perimeter of the door frame. Do not pull the sheeting taut. Rather, leave slack at the top and bottom of the door before taping or stapling.
 - b. Cut a vertical slit in the middle of the sheeting leaving 6" uncut at the top and bottom. Reinforce with tape.
 - c. Cut and secure a second layer of sheeting to the top of the door.
4. Close and cover all open ducts in the work area with taped-down plastic sheeting.
 5. All dust and debris generated during the work should be completely cleaned and removed from the property.
 6. Ensure that all personnel, tools, materials, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving the work area.

E. Work Outside the House

1. Cover the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces where the work will occur or a sufficient distance to collect falling paint debris, whichever is greater. If the work will affect surfaces within 10 feet of the property line, then vertical containment or equivalent extra precautions must be erected to prevent contamination of adjacent buildings and property.
2. Close all doors and windows within 20 feet of the work. On multi-story buildings, close all doors and windows within 20 feet of the work on the same floor as the work, and close all doors and windows on all floors below that are the same horizontal distance from the work.
3. Ensure that doors within the work area that will be used while the job is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.
4. Contractor must take additional precautions as necessary in containing the work area to ensure that dust and debris from the work does not contaminate other buildings or other areas of the property or migrate to adjacent properties.

F. Contractor Protection

1. Contractor to comply with EPA, OSHA and Michigan guidelines regarding the protection of employees.

2. At a minimum, Contractor shall wear disposable protective clothing, disposable shoe covers to prevent tracking of dust from the work area, and headgear to protect the head from dust and debris.
3. Contractor shall utilize N-100 respiratory protection at a minimum when work will produce dust or paint chips.
4. Contractor is prohibited from smoking, drinking or eating in the work area.

G. Prohibited Practices

1. Use of open-flame burning or torching of painted surfaces.
2. Use of machines designed to remove paint or other surface coatings using high speed operation such as sanding, grinding, power planing, needle gun, abrasive blasting, or sandblasting, on painted surfaces is prohibited unless such machines have shrouds or containment systems and are equipped with a HEPA vacuum attachment to collect dust and debris at the point of generation. Machines must be operated so that no visible dust or release of air occurs outside the shroud or containment system.
3. Operating a heat gun on painted surfaces at temperatures greater than 1,100°F.

H. The work area should be cleaned thoroughly and left clean at the end of every day. The work area must be completely free of dust and debris.

1. Remind residents to stay out of the work area until the work is complete.
2. Vacuum the work area with a HEPA vacuum cleaner frequently.
3. Clean tools at the end of the day.
4. Collect all paint chips and debris and seal in a heavy-duty bag.
5. Remove the protective sheeting. Mist the sheeting before folding it dirty side inward, and either tape shut or seal in heavy-duty bags. Sheeting used to isolate contaminated rooms from non-contaminated rooms must remain in place until after the cleaning and removal of other sheeting. Dispose of the sheeting as waste.
6. The Contractor must clean all objects and surfaces in the work area and within 2 feet of the work area, cleaning from higher to lower:
 - a. Clean walls with a HEPA vacuum or wiping with a damp cloth.
 - b. Thoroughly vacuum all remaining surfaces and objects in the work area, including furniture and fixtures, with a HEPA vacuum. The HEPA vacuum must be equipped with a beater bar when vacuuming carpets and rugs.

- c. Wipe all remaining surfaces and objects in the work area, except carpet or upholstery, with a damp cloth. Mop uncarpeted floors thoroughly.
- d. Return items moved to complete the work to their original locations.

I. Containment of Waste

1. Collect and control all waste generated. This includes dust, debris, paint chips, protective sheeting, HEPA filters, dirty water, cloths, mop heads, wipes, protective clothing, respirators, gloves, architectural components and other waste.
2. Use heavy plastic sheeting or bags to collect waste. Seal the bag securely with duct tape. Consider double bagging waste to prevent tears. Large components must be wrapped in protective sheeting and sealed with tape.
3. Bag and seal all waste before removing it from the work area.
4. Waste that has been collected from work activities must be stored to prevent access to and the release of dust and debris. Waste transported from renovation activities must be contained to prevent release of dust and debris.
5. All waste should be disposed of according to EPA, OSHA and state requirements. Contractor is responsible for the removal, transport and legal disposal, including permits and fees, of all waste generated.

3.9 REPAIR:

- A. Repair any existing utilities, structures, or features damaged during installation of water utilities to property owner's satisfaction, and at no cost to property owner.

3.10 FIELD TESTING:

- A. Hydrostatically test newly laid pipeline and valved section thereof in accordance with AWWA C600.
- B. Perform system flushing and disinfection per Section 33 13 00 Disinfecting of Water Utility Distribution.

3.11 FIELD PAINTING/COATINGS:

- A. Repair any shop painting/coatings damaged during storage or installation to property owner's satisfaction.

3.12 ADJUSTING:

- A. Coordinate with Engineer and Owner for any field adjustments. The Engineer and Owner reserve the right to reject any field adjustments.

3.13 PROTECTION:

- A. Protect installed water utilities from damage throughout storage, installation, testing, and final approval.**

3.14 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.**

END OF SECTION

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American Iron and Steel Contract Language

The Contractor acknowledges to and for the benefit of the City of Flint ("Purchaser") and the Michigan Department of Environmental Quality (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the State Revolving Fund and/or the Drinking Water Revolving Fund and such law contains provisions commonly known as "American Iron and Steel (AIS);" that requires all iron and steel products used in the project be produced in the United States ("AIS Requirements") including iron and steel provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the AIS Requirements, (b) all iron and steel used in the project will be and/or have been produced in the United States in a manner that complies with the AIS Requirements, unless a waiver of the requirements is approved or the State made the determination in writing that the AIS Requirements do not apply to the project, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the AIS requirements, as may be requested by the Purchaser. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

REQUIRED STANDARD CONTRACT LANGUAGE: CLEAN WATER STATE REVOLVING FUND AND DRINKING WATER REVOLVING FUND

- **Davis-Bacon/Prevailing Federal Wages, Including Labor Standards Provisions**
- **Disadvantaged Business Enterprise (DBE) Requirements***
- **Debarment/Suspension Certification***

*** Bidders should note these sections contain instructions regarding forms/information that must be completed/included with any submitted bid.**

Davis-Bacon/Prevailing Federal Wage Rates

P.L. 111-88 requires compliance with the Davis Bacon Act and adherence to the current U.S. Department of Labor Wage Decision. Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents (see Wage Decision included herein) must be paid on this project. The Wage Decision, including modifications, must be posted by the Contractor on the job site. A copy of the Federal Labor Standards Provisions is included and is hereby a part of this contract.

"General Decision Number: MI20220057 02/25/2022

Superseded General Decision Number: MI20210057

State: Michigan

Construction Type: Heavy

County: Genesee County in Michigan.

Heavy, Includes Water, Sewer Lines and Excavation (Excludes Hazardous Waste Removal; Coal, Oil, Gas, Duct and other similar Pipeline Construction)

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

<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 \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
<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 \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

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

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

Modification Number Publication Date
 0 01/07/2022

1

02/25/2022

CARP0706-017 06/01/2021

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 29.48	22.00

ELEC0948-009 06/01/2020

	Rates	Fringes
ELECTRICIAN.....	\$ 39.17	23.51

ENGI0325-019 09/01/2021

POWER EQUIPMENT OPERATORS: Underground Construction (Including Sewer)

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 37.63	24.85
GROUP 2.....	\$ 32.90	24.85
GROUP 3.....	\$ 32.17	24.85
GROUP 4.....	\$ 31.60	24.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backhoe/ Excavator, Boring Machine, Bulldozer, Crane, Grader/ Blade, Loader, Roller, Scraper, Trencher (over 8 ft. digging capacity)

GROUP 2: Trencher (8-ft digging capacity and smaller)

GROUP 3: Boom Truck (non-swinging, non- powered type boom)

GROUP 4: Broom/ Sweeper, Fork Truck, Tractor, Bobcat/ Skid Steer /Skid Loader

ENGI0326-011 06/01/2021

EXCLUDES UNDERGROUND CONSTRUCTION

	Rates	Fringes
OPERATOR: Power Equipment		
Group 1.....	\$ 42.38	24.85
Group 2.....	\$ 39.02	24.85
Group 3.....	\$ 36.43	24.85
Group 4.....	\$ 34.72	24.85
Group 5.....	\$ 34.72	24.85
Group 6.....	\$ 28.86	24.85

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: \$1.50 per hour above the group 1 rate.
Crane operator with main boom and jib 400' or longer: \$3.00 per hour above the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane operator with main boom and jib 400', 300', or 220' or longer.

GROUP 2: Crane operator with main boom and jib 140' or longer, tower crane, gantry crane, whirley derrick

GROUP 3: Backhoe/Excavator; Boring Machine; Bulldozer; Crane; Grader/Blade; Loader; Roller; Scraper; Tractor; Trencher

GROUP 4: Bobcat/Skid Loader; Broom/Sweeper; Fork Truck (over 20' lift)

GROUP 5: Boom truck (non-swinging)

GROUP 6: Fork Truck (20' lift and under for masonry work)

IRON0025-006 06/01/2019

	Rates	Fringes
IRONWORKER		
Reinforcing.....	\$ 30.98	27.99
Structural.....	\$ 36.77	29.03

LAB00334-009 06/01/2021

EXCLUDES OPEN CUT CONSTRUCTION

	Rates	Fringes
Landscape Laborer		
GROUP 1.....	\$ 21.35	7.40
GROUP 2.....	\$ 19.35	7.40

LANDSCAPE LABORER CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator, lawn sprinkler installer and skidsteer (or equivalent)

GROUP 2: Landscape laborer: small power tool operator, material mover, truck driver and lawn sprinkler installer tender

LAB00334-015 09/01/2018

SCOPE OF WORK:

OPEN CUT CONSTRUCTION: Excavation of earth and sewer, utilities, and improvements, including underground piping/conduit (including inspection, cleaning, restoration, and relining)

	Rates	Fringes
LABORER		
(1) Common or General.....	\$ 21.94	12.85
(2) Mason Tender- Cement/Concrete.....	\$ 22.08	12.85
(4) Grade Checker.....	\$ 22.25	12.85

(5) Pipelayer.....	\$ 22.39	12.85
(7) Landscape.....	\$ 16.84	12.85

LAB01075-010 06/01/2021

EXCLUDES OPEN CUT CONSTRUCTION

Rates Fringes

LABORER

Common or General; Grade Checker; Mason Tender - Cement/Concrete; Pipelayer..	\$ 26.11	13.95
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PAIN1052-003 05/01/2020

Rates Fringes

PAINTER

Brush & Roler.....	\$ 25.50	14.15
Spray.....	\$ 26.85	14.15

PLAS0016-016 04/01/2014

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...	\$ 25.58	12.88
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PLUM0370-006 06/01/2020

Rates Fringes

PLUMBER/PIPEFITTER.....	\$ 39.81	20.95
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TEAM0007-006 06/01/2020

Rates Fringes

TRUCK DRIVER

Dump Truck under 8 cu. yds.; Tractor Haul Truck....	\$ 27.90	.50 + a+b
Dump Truck, 8 cu. yds. and over.....	\$ 28.00	.50 + a+b
Lowboy/Semi-Trailer Truck...	\$ 28.15	.50 + a+b

FOOTNOTE:

- a. \$470.70 per week.
- b. \$68.70 daily.

SUMI2010-055 11/09/2010

Rates Fringes

TRUCK DRIVER: Off the Road Truck.....	\$ 20.82	3.69
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WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any

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

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

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

Union Rate Identifiers

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

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

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates

the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

Wage and Hour Administrator
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

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

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

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

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

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END OF GENERAL DECISIO"

29 CFR Part 5 – Labor Standards Provisions for Federally Assisted Projects

§ 5.5 Contract provisions and related matters.

(a) The Agency head shall cause or require the contracting officer to insert in full in 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 Sec. 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, *Provided*, That such modifications are first approved by the Department of Labor):

(1) *Minimum wages.* (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 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 Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

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

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

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

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

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, 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 contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

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

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

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

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

(2) *Withholding.* The (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of

1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) *Payrolls and basic records.* (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 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 (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/whd/forms/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

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

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 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 (write the name of the agency) or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 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 (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

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

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

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

(10) *Certification of eligibility.* (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.

(b) *Contract Work Hours and Safety Standards Act.* The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in 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. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(a) or 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

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

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible there for 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 (b)(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 (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from 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.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that 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. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

Disadvantaged Business Enterprises (DBE)

Prime contractors bidding on this project must follow, document, and maintain documentation of their Good Faith Efforts, as listed below, to ensure that Disadvantaged Business Enterprises (DBEs) have the opportunity to participate in the project by increasing DBE awareness of procurement efforts and outreach. Bidders must make the following Good Faith Efforts for any work that will be subcontracted.

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. Place DBEs on solicitation lists and solicit DBEs whenever they are potential sources.
2. Make information on forthcoming opportunities available to DBEs. Arrange time-frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. Whenever possible, post solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date. The DBEs should be given a minimum of 5 days to respond to the posting.
3. Consider in the contracting process whether firms competing for large contracts can be subcontracted with DBEs. Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one DBE firm to handle individually.
5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce.

Subsequent to compliance with the Good Faith Efforts, the following conditions also apply under the DBE requirements. Completed Good Faith Efforts Worksheets (Attachment 1), along with the required supporting documentation outlined in the instructions, must be submitted with your bid proposal. EPA form 6100-2 must also be provided at the pre-bid meeting. A copy of this form is available on the Forms and Guidance page of the Revolving Loan website.

1. The prime contractor must pay its subcontractor for work that has been satisfactorily completed no more than 30 days from the prime contractor's receipt of payment from the owner.
2. The prime contractor must notify the owner in writing prior to the termination of any DBE subcontractor for convenience by the prime contractor and employ the Good Faith Efforts if soliciting a replacement contractor.
3. If a DBE contractor fails to complete work under the subcontract for any reason, the prime contractor must employ the Good Faith Efforts if soliciting a replacement contractor.
4. The prime contractor must employ the Good Faith Efforts.

Debarment Certification

The prime contractor must provide a completed **Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form** with its bid or proposal package to the owner (Attachment 2).

Attachment 1

**Disadvantaged Business Enterprise (DBE) Utilization
GOOD FAITH EFFORTS WORKSHEET**

**Michigan Department of Environmental Quality
Office of Drinking Water and Municipal Assistance– Revolving Loan Section
Disadvantaged Business Enterprise (DBE) Utilization
State Revolving Fund/Drinking Water Revolving Fund
GOOD FAITH EFFORTS WORKSHEET**

Bidder: _____

Subcontract Area of Work (one per worksheet): _____

Outreach Goal: Solicit a minimum of three (3) DBEs via email/letter/fax. It is recommended that various sources be used to locate the minimum number of DBEs. The Michigan Department of Transportation (MDOT) website and www.sam.gov registries may be two resources used to find a minimum of three DBEs.

List the DBEs contacted for the above area of work and complete the following information for each DBE.

Company Name	Type of Contact	Date of Contact	Price Quote Received	Accepted/ Rejected	Please Explain if Rejected
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	

Explanation for Not Achieving a Minimum of Three Contacts; you may include a printout of the MDOT and www.sam.gov search results (attach extra sheets if necessary):

MITA DBE Posting Date (if applicable): _____
(attach a copy of the DBE advertisement)

Other Efforts (attach extra sheets if necessary):

Please include the completed worksheet and supporting documentation with the bid proposal.

Rev.3-2015

Rick Snyder, Governor



Dan Wyant, Director

**Michigan Department of Environmental Quality
Office of Drinking Water and Municipal Assistance– Revolving Loan Section
Disadvantaged Business Enterprise (DBE) Utilization
State Revolving Fund/Drinking Water Revolving Fund
GOOD FAITH EFFORTS WORKSHEET**

Instructions to Bidders for the Completion of the Good Faith Efforts Worksheet

1. Separate worksheets must be provided for each area of work to be subcontracted out. This includes both major and minor subcontracts.
2. A minimum of three (3) DBEs must be contacted by a verifiable means of communication such as e-mail, letter, or fax for each area of work to be subcontracted out. Copies of the solicitation letters/e-mails and fax confirmation sheets must be provided with the worksheet.
3. If less than three (3) DBEs exist statewide for the area of work, then provide documentation that other DBE resources were consulted. This may include the MDOT and www.sam.gov registries and an advertisement in a publication. A printout of the website searched (conducted prior to the end of the bid period) must be submitted.
4. Posting solicitations for quotes/proposals from DBEs on the MITA website (www.mitadbe.com) is highly recommended to facilitate participation in the competitive process whenever possible. The solicitation needs to identify the project and the areas of work to be subcontracted out. A copy of the MITA DBE advertisement must be submitted with the Good Faith Efforts worksheet, if used, or a printout of the resulting quotes posted to the MITA website can be submitted with this form as supporting documentation.
5. If the area of work is so specialized that no DBEs exist, then an explanation is required to support that conclusion, including the documentation required in No. 3 above.
6. The date of the DBE contact must be identified, as it is important to document that the DBE solicitation was made during the bid period and that sufficient time was given for the DBE to return a quote.
7. Each DBE firm's price quote must be identified if one was received or N/A entered on the worksheet if a quote was not received. Copies of all quotes must be submitted with the worksheet.
8. If a quote was received, indicate if it was accepted or rejected. Justification for not accepting a quote and not using the DBE subcontractor must be provided.
9. Under Other Efforts, please indicate additional steps you have taken to obtain DBE contractors and provide the appropriate supporting documentation such as:
 - Follow-up e-mails, faxes, or letters.
 - Copies of announcements/postings in newspapers, trade publications, or minority media that target DBE firms.

Rev. 3-2015

Attachment 2

***Certification Regarding
Debarment, Suspension, and Other Responsibility Matters***

**Certification Regarding
Debarment, Suspension, and Other Responsibility Matters**

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

- (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in transactions under federal nonprocurement programs by any federal department or agency;
- (2) Have not, within the three year period preceding the proposal, had one or more public transactions (federal, state, or local) terminated for cause or default; and
- (3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) and have not, within the three year period preceding the proposal, been convicted of or had a civil judgment rendered against it:
 - (a) For the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction (federal, state, or local) or a procurement contract under such a public transaction;
 - (b) For the violation of federal or state antitrust statutes, including those proscribing price fixing between competitors, the allocation of customers between competitors, or bid rigging; or
 - (c) For the commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

I understand that a false statement on this certification may be grounds for the rejection of this proposal or the termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to five years, or both.

Name and Title of Authorized Representative

Name of Participant Agency or Firm

Signature of Authorized Representative

Date

I am unable to certify to the above statement. Attached is my explanation.

Attachment 3

***Frequently Asked Questions About
Disadvantaged Business Enterprise (DBE) Solicitation***

Disadvantaged Business Enterprise (DBE) Requirements Frequently Asked Questions Regarding Contractor Compliance

Q: What is the Good Faith Efforts Worksheet form and how is it to be completed?

A: This form captures efforts by the prime contractor to solicit DBEs for each area of work type that will be subcontracted out. A separate Good Faith Efforts Worksheet must be provided by the prime contractor for each area of work type to be subcontracted out. There are specific instructions that accompany this form that prescribe minimum efforts which bidders must make in order to be in compliance with the DBE requirements.

Q: Can non-certified DBEs be used?

A: While non-certified DBEs can be used, only DBEs, MBEs, and WBEs that are certified by EPA, SBA, or MDOT (or by tribal, state and local governments, as long as their standards for certification meet or exceed the standards in EPA policy) can be counted toward the fair share goal. Proof of certification by one of these recognized and approved agencies should be sought from each DBE.

Q: How does a DBE get certified?

A: Applications for certification under MDOT can be found at <http://mdotiboss.state.mi.us/UCP/LearnHowServlet>.

Applications for certification under EPA can be found on EPA's Small Business Programs website at http://www.epa.gov/osbp/dbe_firm.htm under Certification Forms.

Q: If a bidder follows the MDOT DBE requirements, will the bidder be in compliance with the SRF/DWRF DBE requirements?

A: No. Federally funded highway projects utilize DBE goals, which require that a certain percentage of work be performed by DBE subcontractors. For SRF/DWRF projects, there is no financial goal. However, there is a solicitation effort goal. Bidders must use Good Faith Efforts for each and every area of work to be subcontracted out to obtain DBEs. The bidders are not required to use DBEs if the quotes are higher than non-DBE subcontractors. **There is no required DBE participation percentage contract goal for the SRF/DWRF.** However, if the SRF/DWRF project is part of a joint project with MDOT, the project can be excluded from SRF/DWRF DBE requirements (i.e., the Good Faith Efforts Worksheet is not required) as it would be difficult to comply with both programs' requirements.

Q: Must the Good Faith Efforts Worksheet and supporting documentation be turned in with the bid proposals?

A: Yes. This is a requirement to document that the contractor has complied with the DBE requirements and the Good Faith Efforts. These compliance efforts must be done during the bidding phase and not after-the-fact. It is highly recommended that the need for these efforts and the submittal of the forms with the bid proposals be emphasized at the pre-bid meetings. Failure to show that the Good Faith Efforts were complied with during the bidding process can lead to a prime contractor being found non-responsive.

Q: Does EPA form 6100-2 need to be provided at the pre-bid meeting?

A: Yes. The form must be made available at the pre-bid meeting.

Q: What kinds of documentation should a contractor provide to document solicitation efforts?

A: Documentation can include fax confirmation sheets, copies of solicitation letters/e-mails, printouts of online solicitations, printouts of online search results, affidavits of publication in newspapers, etc.

Q: How much time will compliance with the Good Faith Efforts require in terms of structuring an adequate bidding period?

A: Due to the extent of the efforts required, a minimum of 30 calendar days is recommended between bid posting and bid opening to ensure adequate time for contractors to locate certified DBEs and solicit quotes.

Q: How does a contractor locate certified DBEs?

A: The Michigan Department of Transportation has a directory of all Michigan certified entities located at <http://mdotjboss.state.mi.us/UCP/>. Additionally, the federal System for Award Management (SAM) is another place to search and can be found at www.sam.gov. SAM contains information from the former Central Contractor Registration (CCR) database.

Q: If the bidder does not intend to subcontract any work, what forms, if any, must be provided with the bid proposal?

A: The bidder should complete the Good Faith Efforts Worksheet with a notation that no subcontracting will be done. However, if the bidder is awarded the contract and then decides to subcontract work at any point, then the Good Faith Efforts must be made to solicit DBEs.

Q: In the perfect world, the Good Faith Efforts Worksheet is required to be turned in with the proposal. What if no forms are turned in with the bid proposal or forms are blank or incomplete? Should this be cause to determine that the bidder is non-responsive?

A: While the Good Faith Efforts Worksheet is important, it is more critical to confirm that the contractor complied with the DBE requirements prior to bid opening. The owner should contact the bidder as soon as deficiencies are noted for a determination/documentation of efforts taken to comply with the DBE requirements. Immediate submittal of the completed forms will be acceptable provided the Good Faith Efforts were made and it is just a matter of transferring information to the forms.

Q: If the prime contractor is a DBE, does he have to solicit DBE subcontractors?

A: Yes, the DBE requirements still apply if the prime intends to subcontract work out. Good Faith Efforts must be used to solicit DBEs.

Q: If the area of work is one where there are less than three DBE contractors, how is the contractor to document this?

A: Copies of printouts from MDOT and SAM showing no DBEs and advertisements soliciting quotes for all subcontract areas, including the questionable areas, will be adequate if the dates on the printouts are prior to the bid or proposal closing date.