

CITY OF WEST LAFAYETTE, INDIANA

**NOTICE TO BIDDERS, INSTRUCTIONS TO BIDDERS, BID FORM,
AGREEMENT FORM, PERFORMANCE BOND, PAYMENT BOND,
MAINTENANCE BOND, GENERAL CONDITIONS,
SUPPLEMENTARY CONDITIONS, AND SPECIFICATIONS**

FOR

CUMBERLAND AVENUE SANITARY SEWER EXTENSION

MAYOR

JOHN R. DENNIS

BOARD OF PUBLIC WORKS AND SAFETY

John R. Dennis, President
Judith C. Rhodes, Clerk of the Board
Sana G. Booker, Member
Bradley W. Marley, Member
Jonathan C. Speaker, Member
Shawn R. Little, Member

**WASTEWATER TREATMENT
UTILITY DIRECTOR**

David S. Henderson

PUBLIC WORKS DIRECTOR

David M. Buck, P.E.

GREELEY AND HANSEN

7820 Innovation Blvd.
Suite 150
Indianapolis, IN 46278

MARCH 2014

CITY OF WEST LAFAYETTE, INDIANA

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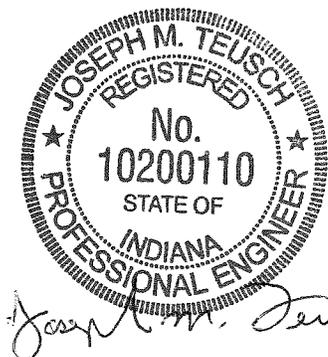
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7820 Innovation Blvd.
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MARCH, 2014



Seal Affixed
March 26, 2014

SECTION 00003

CITY OF WEST LAFAYETTE, INDIANA

CUMBERLAND AVENUE SANITARY SEWER EXTENSION

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SECTION 00100

NOTICE TO BIDDERS

CUMBERLAND AVENUE SANITARY SEWER EXTENSION

The Board of Public Works and Safety of the City of West Lafayette, Indiana, will receive sealed bids for the **Cumberland Avenue Sanitary Sewer Extension** until the hour of **8:30 AM** local time on **April 29, 2014**, at the Office of the Clerk-Treasurer, West Lafayette Police Station, 711 West Navajo Street, West Lafayette, Indiana 47906. Bids received after said time will be returned unopened. No oral, telephoned, telegraphed, or facsimile bids or changes to bids will be considered. Bids will be publicly opened and read aloud on **April 29, 2014**, at **8:30 AM** at the Board of Works meeting at the West Lafayette Public Library, Elm Room, 208 W. Columbia Street, West Lafayette.

The Work shall generally consists of furnishing all labor, materials, equipment, supplies and services for the construction of approximately 7,200 feet of 18-inch gravity sewer and all associated Work complete in place as shown and specified.

A **Pre-Bid Conference** will be held on **April 21, 2014**, at **10:00 a.m.** local time at the West Lafayette Wastewater Treatment Utility, 500 South River Road, West Lafayette, Indiana 47906. All bidders are encouraged to attend and participate in the conference.

Bids must be entered upon the bid form and the State Board of Accounts Form 96 (Revised 2013) submitted in **triplicate** with the bid and non-collusion affidavit properly executed, and must comply with the statutes of Indiana and with the rules and regulations of the State Board of Accounts of Indiana. Bids shall be submitted in a sealed envelope marked, **“BID – CUMBERLAND AVENUE SANITARY SEWER EXTENSION”**.

The bid must be accompanied by a certified or cashier's check or bid bond in an amount not less than five percent (5%) of the total bid price made in favor of the City of West Lafayette, Indiana, which amount shall accrue to and become the property of the City should the Bidder, awarded a contract, fail to enter into the required written agreement and secure the same with the required one hundred percent (100%) performance, payment, and guarantee bond. Wage rates shall not be less than the common construction wage as determined pursuant to IC 5-16-7-1 et seq. as amended.

Copies of the Contract Documents may be obtained from the office of Greeley and Hansen, 7820 Innovation Blvd., Suite 150, Indianapolis, Indiana 46278, (317) 924-3380 upon the payment of \$50.00 for each set. Copies of the Contract Documents may be examined during regular business hours at the Office of the Clerk-Treasurer, City Hall, 711 West Navajo Street, West Lafayette, Indiana 47906.

Bids remain in effect for ninety (90) days. The Board reserves the right to reject any or all bids and to waive irregularities of bidding.

CITY OF WEST LAFAYETTE
BOARD OF PUBLIC WORKS AND SAFETY

Judith C. Rhodes, Clerk-Treasurer

Cumberland Avenue
Project No. 0791H

00100-1

(NO TEXT FOR THIS PAGE)

SECTION 00200

INSTRUCTIONS TO BIDDERS

ARTICLE 1 DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions of the Construction Contract (EJCDC No. 1910-8, 1996 Edition) and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. Bidder - The individual or entity who submits a Bid directly to OWNER.
 - B. Issuing Office - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - C. Successful Bidder - The lowest, responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.
 - D. Notice to Bidders – The advertisement or invitation to bid.
 - E. E- Verify Program – An electronic verification of work authorization program of the Illegal Immigration Reform and Immigration Responsibility Act of 1996 (P.L. 104-208), Division C, Title IV, S.403(a), as amended, operated by the United States Department of Homeland Security or successor work authorization program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work authorization status of newly hired employees under the Immigration Reform and Control Act of 1986 (P.L. 99-603).

ARTICLE 2 COPIES OF BIDDING DOCUMENTS

- 2.01 Refer to the Notice to Bidders for information on how and where copies of the Bidding Documents may be examined or obtained.
- 2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 OWNER and ENGINEER in making copies of Bidding Documents available do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, each Bidder must complete the Experience Questionnaire on the Indiana State Board of Accounts Form 96. The Bidder's financial statement shall be submitted in a separately sealed envelope, clearly

marked Bidder's Financial Statement, enclosed in the sealed envelope containing the Bid. The financial statement will be returned to the Bidder unopened with his Bid Security unless it is necessary to open the envelope for the purpose of determining the award. The financial statement submitted by the successful Bidder will be retained by the OWNER.

- 3.02 Bidders who are nonresident corporations shall furnish to the OWNER a Certified Copy of the Certificate of Authority to do Business in Indiana issued by the State of Indiana within 15 calendar days of notice to do so. Such notice will be given to Bidders who are nonresident corporations, to whom it appears an award will be made, and the copy of the certificate must be filed with the OWNER before the award will be made. Failure to promptly submit this evidence of qualification to do business in the State of Indiana may be basis for rejection of the Bid.
- 3.03 Each bidder must ensure that to the greatest extent feasible, opportunities for training and employment should be given to lower income residents of the project area and purchases and/or contracts for work in connection with the project should be awarded to small business concerns which are located in, or owned in substantial part by persons residing in, the area of the project.

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

- 4.01 It is the responsibility of each Bidder before submitting a Bid to:
- A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
 - B. All Bidders are to inform themselves of the conditions under which the work is to be performed, the site of the work, the obstacles which may be encountered, and all other relevant matters concerning the work to be performed. The successful Bidder will not be allowed any extra compensation by reason of any matter or thing concerning which said Bidder might have fully informed himself, because of his failure to have so informed himself prior to the bidding.
 - C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;
 - D. To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data;
 - E. To promptly notify ENGINEER of all conflicts, errors, ambiguities, or discrepancies which Bidder has discovered in or between the Contract Documents and other such related documents;
 - F. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;

- G. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- H. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents; and
- I. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.02 Reference is made to the Supplementary Conditions for identification of:

- A. Those reports of exploration and tests of subsurface conditions at or contiguous to the site which have been used by ENGINEER in preparation of the Contract Documents. Bidder may rely upon the general accuracy of the “technical data” contained in such reports by not upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction.

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

4.03 Underground Facilities

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

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities and possible changes in the Contract Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions.

4.05 Before submitting a Bid each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs

incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

- 4.06 On request, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- 4.07 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 PRE-BID CONFERENCE

A **Pre-Bid Conference** for the discussion of the Work, the bidding requirements and other important matters will be held at **10:00 a.m.**, local time on **April 21, 2014**, at the Wastewater Treatment Utility, 500 South River Road, West Lafayette, Indiana 47906. Representatives of the OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements made during the Pre-Bid Conference are not to be relied upon and will not be binding or legally effective.

ARTICLE 6 SITE AND OTHER AREAS

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

ARTICLE 7 INTERPRETATIONS AND ADDENDA

- 7.01 No interpretation of the meaning of the Plans, Drawings or other Contract Documents will be made to any Bidder orally. All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER in writing, addressed to: Greeley and Hansen, 7820 Innovation Blvd., Suite 150, Indianapolis, Indiana 46278. Interpretations or

clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda which, if issued, will be mailed or faxed to all parties recorded by ENGINEER as having received the Bidding Documents, not later than 5 days prior to the date fixed for the Bid opening. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

If requested, a copy of an Addendum will be delivered to a prospective Bidder's representative at the office of the ENGINEER and receipted for by said Bidder's representative. Failure of any Bidder to receive any addenda does not relieve said Bidder from any obligation under the Bid as submitted. All addenda issued become part of the Contract Documents.

- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8 BID SECURITY

- 8.01 Each Bid must be accompanied by Bid Security made payable to OWNER in an amount of five (5) percent of Bidder's maximum Bid price and in the form of a certified or bank cashier's check or a Bid Bond, on the form attached, issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within fifteen (15) days after the Notice of Award, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the seventh day after the Effective Date of the Agreement or the 90th day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement and in the Bid Proposal Form.

ARTICLE 10 LIQUIDATED DAMAGES

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

ARTICLE 11 SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12 PREPARATION OF BID

12.01 The Bid Proposal Form is included with the Bidding and Contract Documents. Prepare and present the Bid Form, including a fully executed Indiana State Board of Accounts Form No. 96 together with the Additional Provisions, in accordance with the Instructions to Bidders.

12.02 All blanks on the Bid Form shall be completed and the Bid signed. A Bid price shall be indicated for each Bid item listed therein.

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

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

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

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

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

12.08 Print all names below the signatures.

12.09 Acknowledge receipt of all Addenda on the Bid Form.

- 12.10 Show the address and telephone number for communications regarding the Bid.
- 12.11 Provide evidence of authority to conduct business as an out-of-state corporation in the State of Indiana in accordance with Article 3 above. Show state contractor license number, if any.
- 12.12 E-Verify Affidavit. Provide E-Verify Affidavit, that if Bidder is awarded the Contract, it will enroll in and participate in the E-Verify program. Within three (3) business days of notification by OWNER, the apparent lowest responsive Bidder will be required to submit proof from the E-Verify Program (Post-Bid Submittal) that it is currently enrolled in the Program. An example confirmation is the confirmation email received from E-Verify that the Contractor has successfully enrolled in E-Verify.

ARTICLE 13 SUBMITTAL OF BID

- 13.01 A bid shall be submitted no later than the time and place indicated in the Notice to Bidders and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of Bidder, and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate envelope plainly marked on the outside with the notation "**BID – CUMBERLAND AVENUE SANITARY SEWER EXTENSION.**" A mailed bid shall be addressed to City of West Lafayette, 711 West Navajo Street, West Lafayette, Indiana 47906 and sent by Certified Mail. Mailed Bids must be received no later than the time fixed for opening Bids.

ARTICLE 14 MODIFICATION AND WITHDRAWAL OF BID

- 14.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 14.02 If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid Security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

ARTICLE 15 OPENING OF BIDS

- 15.01 Bids will be opened at the time and place indicated in the advertisement or Notice to Bidders and, unless obviously nonresponsive, read aloud publicly.

ARTICLE 16 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 16.01 All Bids will remain subject to acceptance for 90 calendar days after the day of the Bid Opening, but OWNER may, in its sole discretion, release any Bid and return the Bid Security prior to that date.

ARTICLE 17 AWARD OF CONTRACT

- 17.01 OWNER reserves the right to reject any or all Bids, including, without limitation, the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the OWNER. OWNER also reserves the right to waive all information not involving price, time or changes in the Work and to negotiate contract terms with the successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between the words and figures will be resolved in favor of the words.
- 17.02 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 17.03 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications and financial ability of Bidders to perform the Work in accordance with the Contract Documents.
- 17.04 If the contract is to be awarded, OWNER will award the contract to the Bidder whose Bid will be in the best interests of the Project.

ARTICLE 18 CONTRACT SECURITY AND INSURANCE

- 18.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds.
- 18.02 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to insurance. Certificates of Insurance (and other evidence of insurance requested by OWNER or Other Additional Insured) must be furnished, as required, before beginning work.

ARTICLE 19 SIGNING OF AGREEMENT

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

ARTICLE 20 SALES AND USE TAXES

20.01 OWNER is exempt from Indiana State Sales and Use Taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Contract Price. Refer to Paragraph SC-6.10 of the Supplementary Conditions for additional information.

ARTICLE 21 RETAINAGE

21.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 22 WAGE RATES

22.01 Wage rates for the Work shall be not less than the current State of Indiana prescribed wage scale. The prevailing wage rates applicable to the project are attached as **Exhibit A** and made a part of the Supplementary Conditions.

ARTICLE 23 PROJECT FUNDING

23.01 This project will be funded through local funds.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 00300

BID PROPOSAL FORM

Part of State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)

BID OF

(Contractor)

(Address)

FOR

PUBLIC WORKS PROJECTS

OF

BOARD OF PUBLIC WORKS AND SAFETY

CITY OF WEST LAFAYETTE, INDIANA

CUMBERLAND AVENUE SANITARY SEWER EXTENSION

Filed _____, _____

Action taken _____



CONTRACTOR'S BID FOR PUBLIC WORK - FORM 96

State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)
Prescribed by State Board of Accounts

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year): _____

1. Governmental Unit (Owner): Board of Public Works and Safety, West Lafayette, IN

2. County : Tippecanoe

3. Bidder (Firm): _____

Address: _____

City/State/ZIPcode: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of West Lafayette, IN

(Governmental Unit) in accordance with plans and specifications prepared by _____

_____ and dated _____ for the sum of

stated in Section VII \$ _____

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS

(If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ACCEPTANCE

The above bid is accepted this _____ day of _____, _____, subject to the following conditions: _____

Contracting Authority Members:

PART II

(For projects of \$150,000 or more – IC 36-1-12-4)

Governmental Unit: Board of Public Works and Safety

Bidder (Firm) _____

Date (month, day, year): _____

These statements to be submitted under oath by each bidder with and as a part of his bid. Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. *(Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)*

2. Please list the names and addresses of all subcontractors *(i.e. persons or firms outside your own firm who have performed part of the work)* that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION VI: ASSURANCES

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform all Work as specified or indicated in the Contract Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Notice to Bidders and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the day of Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER. Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding requirements within 15 days after the date of OWNER's Notice of Award.

3. In submitting this Bid, Bidder represents, set forth in the Agreement, that:
 - A. Bidder has examined and carefully studied the Contract Documents, the other related data identified in the Contract Documents, and the following Addenda, receipt of all which is hereby acknowledged:

Addendum No. _____	Dated _____
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____

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

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

 - D. Bidder has carefully studied all: reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface of subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions. Bidder accepts the determination set forth in paragraph SC-4.02 of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions. Bidder acknowledges that such reports and drawings are not Contract

Documents and may not be complete for Bidder's purposes. Bidder acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Contract Documents.
- G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- I. Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of the Work for which this Bid is submitted.
- J. Bidder is of lawful age and that no other person, firm, corporation, or joint venture has any interest in the Bid or in the Contract proposed to be entered into.
- K. This Bid is made without any understanding, agreement, or connection with any other person, firm, corporation, or joint venture making a Bid for the same purposes, and is in all respects fair and without collusion or fraud.
- L. Bidder is not in arrears to the City of West Lafayette, upon debt or contract; is not a defaulter, as surety or otherwise, upon any obligation to the City of

West Lafayette; and has not been delinquent or unfaithful in any former contract with the City of West Lafayette.

- M. No officer or employee or person whose salary is payable in whole or in part by the Owner is, shall be or become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise, in this Bid, or in the performance of the Contract, or in the supplies, materials, or equipment and Work or labor to which it relates, or in any portion of the profits thereof.
- N. Bidder is a duly registered Contractor in the State of Indiana. A successful bidder shall furnish proof of registration before the Contract will be awarded.
- O. Bidder has given the ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that the Bidder has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to Bidder, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
- P. Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

SECTION VII: BID PRICES

1. Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform all Work as specified or indicated in the Contract Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder declares that all the component parts of the Contract documents have been carefully examined and the documents are fully understood and it is agreed that the Bidder will execute the Contract and furnish the required Performance and Payment Bonds and will complete the Work in accordance with the Contract Documents for the following prices:

BID

Contract Item No.	Estimated Quantity	Description and Price in Words	Price in Figures	
			Unit Price	Computed Total Price For Item
1	Lump Sum	Provide Mobilization and Demobilization as specified for the lump sum price of _____ dollars and _____ cents.	Lump Sum	\$ _____
2	Lump Sum	Provide Maintenance of Traffic as shown and specified for the lump sum price of _____ dollars and _____ cents.	Lump Sum	\$ _____
3	2,900 Lineal Feet	Furnish and install 18-inch PVC (SDR 26) Sanitary Sewer , complete in place as shown and specified for the unit price of _____ dollars and _____ cents per lineal foot.	\$ _____	\$ _____
4	2,600 Lineal Feet	Furnish and install 18-inch PVC (DR 18) Sanitary Sewer , complete in place as shown and specified for the unit price of _____ dollars and _____ cents per lineal foot.	\$ _____	\$ _____

Contract Item No.	Estimated Quantity	Description and Price in Words	Price in Figures	
			Unit Price	Computed Total Price For Item
5	1,800 Lineal Feet	Furnish and install 18-inch Lined DIP Class 53 Sanitary Sewer , complete in place as shown and specified for the unit price of _____ dollars and _____ cents per lineal foot.	\$ _____	\$ _____
6	185 Lineal Feet	Furnish and install 18-inch Lined DIP Class 53 Sanitary Sewer Under Lindberg Road , complete in place as shown and specified for the unit price of _____ dollars and _____ cents per lineal foot.	\$ _____	\$ _____
7	9 Each	Furnish and install 48-inch Sanitary Manhole , complete in place as shown and specified for the unit price of _____ dollars and _____ cents each.	\$ _____	\$ _____
8	11 Each	Furnish and install 60-inch Sanitary Manhole , complete in place as shown and specified for the unit price of _____ dollars and _____ cents each.	\$ _____	\$ _____

Contract Item No.	Estimated Quantity	Description and Price in Words	Price in Figures	
			Unit Price	Computed Total Price For Item
9	4 Each	Furnish and install 60-inch Sanitary Outside Drop Manhole , complete in place as shown and specified for the unit price of _____ dollars and _____ cents each.	\$ _____	\$ _____
10	1 Each	Furnish and install 60-inch Sanitary Inside Drop Manhole , complete in place as shown and specified for the unit price of _____ dollars and _____ cents each.	\$ _____	\$ _____
11	100 Cubic Yards	Furnish and install Additional Earth Excavation , complete in place for the unit price of _____ dollars and _____ cents per cubic yard.	\$ _____	\$ _____
12	200 Cubic Yards	Furnish and install Additional Select Fill Material , complete in place for the unit price of _____ dollars and _____ cents per cubic yard.	\$ _____	\$ _____
13	Lump Sum	Work Allowance for the lump sum price of <u>Twenty-Five Thousand</u> dollars and <u>Zero</u> cents.	Lump Sum	\$ <u>25,000.00</u>

Contract Item No.	Estimated Quantity	Description and Price in Words	Price in Figures	
			Unit Price	Computed Total Price For Item
14	15 Days	Incentive Payment for early completion of Work at the unit price of <u>One Thousand</u> dollars and <u>Zero</u> cents per day.	\$ <u>1,000.00</u>	\$ <u>15,000.00</u>

TOTAL BID PRICE (Total of All Contract Item Prices)

_____ (\$ _____)

(Amount in Words) (Amount in Figures)

CONTRACTOR: _____

SECTION VIII: ADDITIONAL PROVISIONS

1. Unit Prices have been computed in accordance with paragraph 11.03 of the General Conditions.
2. Bidder acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.
3. Milestone 1 – Bidder agrees that all submittals will be submitted to ENGINEER within **45 calendar days** of Notice-to-Proceed.

Milestone 2 – Bidder agrees that all remaining Work will be substantially complete within **160 calendar days** of the Notice-to-Proceed as provided in paragraph 2.03 of the General Conditions.

Final Payment – Bidder agrees that Work will be completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within **180 calendar days** of the Notice-to-Proceed.

4. Bidder accepts the provisions of the Agreement as to incentive payments in the event Substantial Completion for Milestone 2 is achieved in advance of the time specified above, which shall be stated in the Agreement in Section 00500.
5. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Agreement in Section 00500.
6. The following documents are attached to and made a condition of this Bid:
 - a. Required Bid Security in the amount of five percent (5%) of the bid in the form of a Certified or Cashier's Check, or a Bid Bond on the attached form. The Bid Security will be retained or returned in accordance with Article 8 of the Instructions to Bidders.
 - b. Required executed copy of Bidder's Qualification Statement with supporting data (Part II of Bid Proposal Form).
 - c. Required Bidder's Financial Statement.
 - d. E-Verify Affidavit (refer to Section 00200, Paragraph 12.12).
7. The terms used in this Bid which are defined in the General Conditions or Instructions to Bidders will have the meanings indicated in the General Conditions or Instructions to Bidders.
8. Accompanying this Bid is a certified check, a bank cashier's check, or bid bond which shall become the property of the City of West Lafayette, Indiana, if this Bid shall be accepted by the City of West Lafayette, Indiana, and the undersigned bidder fails to furnish the required bonds and insurance within Fifteen (15) days and to enter into a Contract within Thirty (30) days after the Owner's acceptance of this Bid.

IN WITNESS WHEREOF, this Bid is hereby signed and sealed as of the date indicated.

Date: _____ Bidder:
By: _____

Printed name of signer

Title of signer

Where Bidder is a Corporation, add:

(SEAL) ATTEST: _____
Secretary

Where Bidder is a Joint Venture, each member of the Joint Venture must sign the Bid.

The bid must be sworn to by the person signing the bid in one of the following forms:

(Form of Affidavit where Bidder is an Individual)

STATE OF)
) SS:
COUNTY OF)

_____, being duly sworn, deposes and says: That I am the person described in and who executed the foregoing Bid and that the several matters therein stated are in all respects true.

(Signature)

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public _____ County

(SEAL)

My Commission expires:

(Form of Affidavit where Bidder is a Firm)

STATE OF)
) SS:
COUNTY OF)

_____, being duly sworn,

deposes and says: That I am a member of _____

_____ the firm described in and which executed the foregoing Bid; that I duly subscribed the name of the firm thereunto on behalf of the firm; and that the several matters therein stated are in all respects true.

(Signature)

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public _____ County

(SEAL)

My Commission expires:

(Form of Affidavit where Bidder is a Corporation)

STATE OF)
) SS:
COUNTY OF)

_____ and _____
being duly sworn, depose and say: That we reside in the Cities of

_____ and
_____, respectively;

that we are the _____ and
_____, respectively;

of _____
the corporation described in and which executed the foregoing instrument; that we know the seal of the corporation; that the seal affixed to this instrument is such corporate seal and was so affixed by order of the Board of Directors of the corporation; that we signed our names thereto by like order; and that we have knowledge of the several matters therein stated and they are in all respects true.

(Signature)

(Signature)

Subscribed and sworn to before me this _____
day of _____, 20__.

Notary Public _____ County

(SEAL)

My Commission expires:

(Form of Affidavit where Bidder is a Joint Venture)

STATE OF)
) SS:
COUNTY OF)

Name: _____

Firm: _____

Name: _____

Firm: _____

Name: _____

Firm: _____

and

Name: _____

Firm: _____

being duly sworn, depose and say: That we are members of the joint venture described in and which executed the foregoing Bid; that we duly subscribed the names of the firms forming the joint venture thereunto on behalf of each firm and that the several matters therein stated are in all respects true.

(Signature)

(Signature)

(Signature)

(Signature)

Subscribed and sworn to before me this _____
day of _____, 20__.

Notary Public _____ County

(SEAL)

My Commission expires:

E-VERIFY AFFIDAVIT

(To be submitted with Bid)

Pursuant to Indiana Code 22-5-1.7-11, the contractor awarded the Bid is required to enroll in and verify the work eligibility status of all its newly hired employees through the E-Verify Program. The contractor who is award the Bid is not required to verify the work eligibility status of all its newly hired employees through the E-Verify Program if the E-Verify Program no longer exists.

The individual person(s) executing this Proposal, being first duly sworn, depose(s) and state(s) that the Bidder does not knowingly employ an unauthorized alien. The undersigned further affirms that, prior to entering into an agreement for this Bid, the undersigned business entity will enroll in and agrees to verify the work eligibility status of all its newly hired employees through the E-Verify Program.

SIGNATURES

[Signature by or on behalf of the Bidder in the spaces provided below shall constitute execution of this E-Verify Program Affidavit.]

Written Signature: _____

Printed Name: _____

Title: _____

Important – Notary Signature and Seal Required in the Space Below

STATE OF _____

SS:

COUNTY OF _____

Subscribed and sworn to before me this _____ day of _____, 20____

My commission expires: _____ (Signed) _____

Residing in _____ County, State of _____

(NO TEXT THIS PAGE)

BID BOND

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

BID

BID DUE DATE: _____
PROJECT (Brief Description Including Location):

BOND

BOND NUMBER: _____
DATE (Not later than Bid due date): _____
PENAL SUM: _____ (Words) _____ (Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

_____(Seal)
Bidder's Name and Corporate Seal

_____(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

- Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by OWNER, or
 - 3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

SECTION 00500

FORM OF AGREEMENT

BETWEEN OWNER AND CONTRACTOR

ON THE BASIS OF A STIPULATED PRICE

THIS AGREEMENT is dated as of the _____ day of _____ in the year ____ by and between the Board of Public Works and Safety, West Lafayette, Indiana (hereinafter called OWNER) and _____ hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents.

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

**West Lafayette, Indiana
Cumberland Avenue Sanitary Sewer Extension**

Article 2. ENGINEER

The Project has been designed by Greeley and Hansen who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIMES

3.1 Substantial Completion

Milestone 1 – All submittals will be submitted to ENGINEER within **45 calendar days** of Notice-to-Proceed.

Milestone 2 – All remaining Work will be substantially complete within **160 calendar days** of the Notice-to-Proceed as provided in paragraph 2.03 of the General Conditions. Substantial Completion shall be defined as the installation of sewer, manholes, backfilling, pavement, and seed in-place restoration.

3.2 Final Completion and Readiness for Final Payment

All Work shall be completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within **180 calendar days** of the Notice-to-Proceed.

3.3 Incentive Payments

If Substantial Completion for Milestone 2 is met in advance of the time specified in paragraph 3.1 Incentive Payments may be paid out of the Incentive Payment Contract Item as described in Section 01291.

3.4 Liquidated Damages

OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraphs 3.1 and 3.2 above plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER One Thousand Five Hundred dollars (\$1,500) for each calendar day that expires after the time specified for Substantial Completion. CONTRACTOR shall pay OWNER One Thousand dollars (\$1,000) for each calendar day that expires after the time specified for Final Completion and Readiness for Final Payment.

Article 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the total sum of the amounts determined pursuant to the CONTRACTOR's Bid.

As provided in paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03 of the General Conditions.

Article 5. PAYMENT PROCEDURES

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

5.1 Progress Payments; Retainage

OWNER shall make progress payments on the basis of CONTRACTOR's Applications for Payment, on or about the thirtieth day of each month during performance of the Work as provided in paragraphs 5.1.1 and 5.1.2 below. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed).

5.1.1 Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine, or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions.

Progress payments shall not exceed an amount equal to 90 percent of the Work completed and of the cost of materials not incorporated in the Work but delivered and suitably stored (with the balance being retainage). If the Work is 50 percent complete as determined by ENGINEER, and if the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no retainage on account of Work subsequently completed, in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100 percent of the Work completed less the aggregate of payments previously made; and

5.1.2 Upon Substantial Completion, OWNER may pay an amount sufficient to increase total payments to CONTRACTOR to 100 percent of the Work completed, less 200 percent of ENGINEER's estimate of the value of Work to be completed or corrected attached to the certificate of Substantial Completion.

5.2 Final Payment

Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- 6.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda) and the other related data identified in the Bidding Documents including "technical data".
- 6.2 CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- 6.3 CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- 6.4 CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions. CONTRACTOR accepts the determination set forth in paragraph SC-4.02 of the Supplementary Conditions as to the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 4.02B of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the Site.
- 6.5 CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.

- 6.6 CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies or data are necessary for the performance of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.
- 6.7 CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- 6.8 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- 6.9 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 7.1 This Agreement, identified as Section 00500
- 7.2 Performance and Payment Bonds, identified as Sections 00610 and 00620
- 7.3 Maintenance Bond, identified as Section 00650
- 7.4 Notice to Proceed, identified as Section 00680
- 7.5 CONTRACTOR'S BID, identified as Section 00300
- 7.6 Standard General Conditions, identified as Section 00700
- 7.7 Supplementary Conditions, identified as Section 00800
- 7.8 Specifications bearing the title City of West Lafayette, Indiana Cumberland Avenue Sanitary Sewer Extension
- 7.9 Drawings bearing the title City of West Lafayette, Indiana Cumberland Avenue Sanitary Sewer Extension

7.10 Addenda (numbers _____ to _____, inclusive)

7.11 Exhibit A, Wage Rates

The documents listed in the paragraphs above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.05 of the General Conditions.

In resolving conflicts, errors, discrepancies and disputes concerning the Scope of Work to be performed by Contractor, and other rights and obligations of Owner and Contractor, the document expressing the greater quantity, quality or other scope of work in question, or imposing the greater obligation upon Contractor and affording the greater right or remedy to Owner shall govern; otherwise the documents shall be given precedence in the order as enumerated above.

Article. 8 MISCELLANEOUS

8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

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

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

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

8.5 This Contract is to be governed by the law of the State of Indiana. Venue for all disputes arising under this Contract shall be Tippecanoe County, Indiana.

- 8.6 Notwithstanding any term or condition in this Contract to the contrary, in the event litigations is commenced to enforce any term or condition of this Contract, the prevailing party shall be entitled to costs and expenses of litigation including a reasonable attorney fee.
- 8.7 By signing this Contract, CONTRACTOR certifies that it is not engaged in investment activities in the country of Iran as set forth in I.C. 5-22-16.5.

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

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

OWNER: Board of Public Works and Safety CONTRACTOR: _____
City of West Lafayette _____

By: _____ By: _____
Title: _____ Title: _____
[CORPORATE SEAL] [CORPORATE SEAL]

Attest: _____ Attest: _____
Title: _____ Title: _____
Address for giving notices: Address for giving notices:
711 West Navajo Street _____
West Lafayette, IN 47906 _____

(If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement)

License No. _____
Agent for service of process: _____

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

Designated Representative: Designated Representative:
Name: _____ Name: _____
Title: _____ Title: _____
Address: _____ Address: _____

Phone: _____ Phone: _____
Fax: _____ Fax: _____

END OF SECTION

Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

EJCDC No. 1910-28-A (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:

3.1. The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below, that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER's right, if any, subsequently to declare a CONTRACTOR Default; and

3.2. The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR's right to complete the Contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3.1; and

3.3. The OWNER has agreed to pay the Balance of the Contract Price to:

3.3.1. The Surety in accordance with the terms of the Contract;

3.3.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.

4. When the OWNER has satisfied the conditions of paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances;

4.4.1 After investigation, determine the amount for which it may be liable to the OWNER and, as soon as practicable after the amount is determined, tender payment therefor to the OWNER; or

4.4.2 Deny liability in whole or in part and notify the OWNER citing reasons therefor.

5. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond, and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in paragraph 4.4, and the OWNER refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.

6. After the OWNER has terminated the CONTRACTOR's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional and delay costs resulting from the CONTRACTOR's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

7. The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1 Balance of the Contract Price: The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made, including allowance to the CONTRACTOR of any amounts received or to be received by the OWNER in settlement of insurance or other Claims for damages to which the CONTRACTOR is entitled, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract.

12.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

12.3. CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)
AGENT or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. 1910-28-B (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to the OWNER, this obligation shall be null and void if the CONTRACTOR:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies and holds harmless the OWNER from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety, and provided there is no OWNER Default.

3. With respect to Claimants, this obligation shall be null and void if the CONTRACTOR promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the Surety (at the addresses described in paragraph 12) and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with the CONTRACTOR:

1. Have furnished written notice to the CONTRACTOR and sent a copy, or notice thereof, to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from the CONTRACTOR, or not received within 30 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to the Surety and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.

5. If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

6.1. Send an answer to the Claimant, with a copy to the OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the Surety under this Bond, subject to the OWNER's priority to use the funds for the completion of the Work.

9. The Surety shall not be liable to the OWNER, Claimants or others for obligations of the CONTRACTOR that are unrelated to the Contract. The OWNER shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by paragraph 4.1 or paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the OWNER or the CONTRACTOR, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

15.3. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)

AGENCY or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

Maintenance Bond

Instructions:

Successful Bidder must use this form or other form containing the same material conditions and provisions as approved in advance by OWNER.

Date of Bond must not be prior to date of Contract. If CONTRACTOR is a Partnership, all partners should execute bond.

Surety company executing this bond shall appear on the most current list of "Surety Companies Acceptable on Federal Bonds," as specified in the U.S. Treasury Department Circular 570, as amended, and be authorized to transact business in the State of Indiana.

KNOW ALL MEN BY THESE PRESENTS: that

"CONTRACTOR": _____

and

"SURETY": [Name] _____

[Address] _____

a corporation chartered and existing under the laws of the State of _____, and authorized to do business in the State of Indiana,

are held and firmly bound unto the Board of Public Works and Safety, City of West Lafayette, Indiana hereinafter called OWNER, in the penal sum of _____ Dollars, (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, together with interest at the maximum legal rate from date of demand and any attorney fees and court costs incurred by Obligee to enforce this instrument, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the CONTRACTOR has entered into a certain Agreement with the OWNER, dated as of the _____ day of _____, 20____, by which CONTRACTOR has agreed to perform and furnish certain Work for or in furtherance of construction of public improvements described generally as

**West Lafayette, Indiana
Cumberland Avenue Sanitary Sewer Extension**

which Agreement, and the "Contract Documents" as referred to therein, are hereby incorporated herein by reference;

NOTICE TO PROCEED

Dated _____

TO: _____
(CONTRACTOR)

ADDRESS¹: _____

Contract: Cumberland Avenue Sanitary Sewer Extension

Project: _____

OWNER'S CONTRACT NO. _____

You are notified that the Contract Times under the above contract will commence to run on _____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement the date of Substantial Completion is _____ and the date of readiness for final payment is _____.

Before you may start any Work at the Site, paragraph 2.05.C of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must comply with all requirements within the contract documents.

City of West Lafayette, Indiana
(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

(TITLE)

Copy to ENGINEER

¹(Use Certified Mail, Return Receipt Requested)

(NO TEXT FOR THIS PAGE)

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and



AMERICAN CONSULTING
ENGINEERS COUNCIL

Issued and Published Jointly By



**National Society of
Professional Engineers**
Professional Engineers in Private Practice



AMERICAN SOCIETY OF
CIVIL ENGINEERS

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AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General



Contractors of America

Construction Specifications Institute



These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2) (1996 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC User's Guide (No. 1910-50). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1996 Edition).

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American Society of Civil Engineers
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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the

Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

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

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

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

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases,

steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

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

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or 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 action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The

use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

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

2.04 Starting the Work

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

2.05 Before Starting Construction

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified

in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; 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.

C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and 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 Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids),

except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

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

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

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

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

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

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

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

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

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

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

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

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 *Reference Points*

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property

monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

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

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

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

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous

Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing

in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements

of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be

correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 OWNER's Liability Insurance

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

5.06 Property Insurance

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

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

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work

at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 Waiver of Rights

A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion

pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

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

A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required

of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 Labor; Working Hours

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 Services, Materials, and Equipment

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with

any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 Substitutes and "Or-Equals"

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. "Or-Equal" Items: If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under

paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly

required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. Engineer's Evaluation: ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. Special Guarantee: OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. ENGINEER's Cost Reimbursement: ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. CONTRACTOR's Expense: CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or

entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor

or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits

and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not

unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

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

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

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

6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work

Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 *Safety and Protection*

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, 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). CONTRACTOR's duties and

responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample

submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, 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.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

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

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

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop

Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.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 approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *Resubmittal Procedures*

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

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except

as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or
2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;
2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;
4. use or occupancy of the Work or any part thereof by OWNER;
5. any acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. any correction of defective Work by OWNER.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from

and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and

2. is caused in whole or in part 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, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

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

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

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

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations

and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another

representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

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

9.06 *Rejecting Defective Work*

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

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

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

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority

or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change

Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable,

and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be

considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash 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 as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the 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 costs, overhead, profit, and other expenses contemplated for the allow-

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

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. 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.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 *Change of Contract Price*

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

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

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

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

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no

fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by

Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or
2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

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

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given

to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and
3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

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

13.05 *OWNER May Stop the Work*

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop

the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such 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, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. 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 or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

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

13.09 *OWNER May Correct Defective Work*

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In

connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

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

14.02 Progress Payments

A. Applications for Payments

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or 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 referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests,

revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

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

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

- a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling OWNER to a set-off against the amount recommended; or
- d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld.

OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

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

14.04 *Substantial Completion*

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, 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. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibili-

ties pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of 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, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. Review of Application and Acceptance

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

C. Payment Becomes Due

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 Final Completion Delayed

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

14.09 Waiver of Claims

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

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

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

15.02 OWNER May Terminate for Cause

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

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate

the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), 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 finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for 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. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of

engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

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

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

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

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) have the meaning assigned to them in the General Conditions.

SUPPLEMENTARY CONDITIONS TO ARTICLE 1. DEFINITIONS AND TERMINOLOGY

SC-1.01A.7. In the first sentence of the paragraph 1.01.A.7. of the General Conditions delete "Advertisement or Invitation to Bid" and substitute "Notice to Bidders" therefore.

SC-1.01A.51. Add new paragraph 1.01.A.51., immediately after paragraph 1.01.A.50. of the General Conditions which shall read as follows:

51. "Additional Insureds", except where otherwise expressly defined, shall mean:

Board of Public Works and Safety, City of West Lafayette, Indiana
Greeley and Hansen LLC
Butler Fairman & Seufert, Inc.
Patriot Engineering and Environmental, Inc.
Purdue Research Foundation
Trustees of Purdue University

SUPPLEMENTARY CONDITIONS TO ARTICLE 2. PRELIMINARY MATTERS

SC-2.02.A. Amend the first sentence of paragraph 2.02.A. of the General Conditions by striking out "ten" and inserting "five", and as so amended paragraph remains in effect.

SC-2.03.A. Delete paragraph 2.03.A. in its entirety and insert the following in its place:

The Contract Time will commence to run on the day indicated in the Notice to Proceed. In no event will the Contract Time commence to run later than 30 days after the Effective Date of the Agreement.

**SUPPLEMENTARY CONDITIONS TO ARTICLE 4. AVAILABILITY OF LANDS;
SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS**

SC-4.02 In the preparation of Drawings and Specifications, ENGINEER relied upon:

4.02.A.1. The following reports of explorations and tests of subsurface conditions at the site of the work:

A report dated May 22, 2013, titled "Geotechnical Engineering Investigation - Cumberland Avenue Sanitary Sewer Extension Proposed", prepared by Patriot Engineering and Environmental, Inc., Indianapolis, Indiana.

4.02.A.2. The following drawings of physical conditions in or relating to existing surface and subsurface structures which are at or contiguous to the site of the work: Not Applicable

The report and drawing listed above is not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02.B. of the General Conditions and as identified and established above are incorporated therein by reference. Bidder is not entitled to rely upon other information and data utilized by ENGINEER in the preparation of Drawings and Specifications. This report may be examined at the office of Greeley and Hansen, Indianapolis during regular business hours.

SUPPLEMENTARY CONDITIONS TO ARTICLE 5. BONDS AND INSURANCE

SC-5.01 Add the following language at the end of paragraph 5.01A of the General Conditions:

CONTRACTOR shall, as a condition to OWNER's obligation to make final payment, supply a three (3) year Maintenance Bond executed by a surety meeting the qualifications set forth in paragraph 5.01 B of the General Conditions and in such form as prescribed by the Contract Documents, which bond shall secure the obligations contained in paragraph 13.07 of the

General Conditions, beginning on the date of Final Acceptance in an amount equal to ten (10) percent of the Contract Price.

SC-5.04

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

5.04.A.1. and 5.04.A.2. Workers' Compensation, etc. under paragraphs 5.04.A.1. and 5.04.A.2. of the General Conditions:

- | | |
|---|--------------|
| (1) State: | Statutory |
| (2) Applicable Federal
(e.g., Longshoreman's): | Statutory |
| (3) Employer's Liability: | \$ 1,000,000 |

5.04.A.3., 5.04.A.4., and 5.04.A.5. Contractor's Liability Insurance under paragraphs 5.04.A.3. through 5.04.A.5. of the General Conditions which shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of CONTRACTOR:

- | | |
|--|--------------|
| (1) General Aggregate
(Except Products –
Completed Operations) | \$ 2,000,000 |
| (2) Products – Completed
Operations Aggregate | \$ 2,000,000 |
| (3) Personal and Advertising
Injury (Per Person/
Organization) | \$ 1,000,000 |
| (4) Each Occurrence
(Bodily Injury and
Property Damage) | \$ 1,000,000 |
| (5) Property Damage Liability Insurance will provide Explosion,
Collapse and Underground coverage where applicable. | |
| (6) Excess Liability
General Aggregate | \$ 6,000,000 |
| Each Occurrence | \$ 2,000,000 |

5.04.A.6. Automobile Liability:

- | | |
|--------------------|------------|
| (1) Bodily Injury: | |
| Each Person | \$ 500,000 |

Each Accident \$ 1,000,000

Property Damage:

Each Accident \$ 500,000

Or

(2) Combined Single
Limit (Bodily Injury
and Property Damage): \$ 1,000,000
Each Accident \$ 1,000,000

5.04.B.1. Include on policies as additional insureds:

Board of Public Works and Safety, City of West Lafayette, Indiana
Greeley and Hansen LLC
Butler Fairman & Seufert, Inc.
Patriot Engineering and Environmental, Inc.
Purdue Research Foundation
Trustees of Purdue University

5.04.B.2. The limits of liability for the insurance required by paragraph 5.04.B.4 of the General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

Contractual Liability:

General Aggregate \$ 2,000,000
Each Occurrence \$ 1,000,000

SC-5.05 Delete paragraph 5.05 of the General Conditions in its entirety and insert the following in its place:

5.05 Contractor shall purchase and maintain until the date of final acceptance, Owners and Contractor's Protective Liability Insurance to protect OWNER, including its employees, officers and agents against claims which may arise from the operations of the Contractor, or his subcontractors. The coverage shall be for not less than the following amounts or greater where required by law or regulation:

Limits per Occurrence
Bodily Injury/Property Damage \$1,000,000
Personal/Advertising Injury \$1,000,000

General Aggregate Limit per Policy
Year except Products/Completed Operations \$3,000,000

This insurance shall also cover the Engineers, Greeley and Hansen, Greeley and Hansen's subconsultants or such other engineer or engineers as may act under the contract, against similar claims.

SC-5.06 Delete paragraph 5.06 of the General Conditions in its entirety and insert the following in its place:

5.06 Property Insurance

- A. CONTRACTOR shall purchase and maintain property insurance on the Work in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework and Work in transit and shall insure against at least the following perils: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils as may be specifically required by the Supplementary Conditions;
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment in transit for incorporation in the Work or stored at the site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;
 5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and
7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with thirty days written notice to each other additional insured to whom a certificate of insurance has been issued.

The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.06A will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07 of the General Conditions.

SUPPLEMENTARY CONDITIONS TO ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES

SC-6.02.B. Add the following after paragraph 6.02.B. of the General Conditions:

1. Work Hours: Perform work between 6:00 a.m. and 7:00 p.m. Mondays through Fridays only. Emergency work may be performed anytime without the OWNER's written consent required in paragraph 6.3
2. Work After Hours: Night work may be established by CONTRACTOR as regular procedure with written consent of OWNER. Such consent, however, may be revoked at any time by OWNER if CONTRACTOR fails to maintain adequate equipment and supervision for proper prosecution and control of night work.

SC-6.02.C. Add the following after paragraph 6.02.B. of the General Conditions:

1. Overtime Pay for Resident Project Representative:

It is not anticipated that construction observation will exceed 40 hours per week. However, CONTRACTOR shall be responsible for overtime pay (in excess of 40 hours per week) for Resident Project Representative when the overtime is directly related to observation of the construction.

Whenever CONTRACTOR is working on any part of the project, Construction Observation will be required and the appropriate number

of Observers must work to properly observe CONTRACTOR's Work. Time spent by Observers in report writing, office work, time sheets and other work not related to actual construction observation will NOT be considered the responsibility of CONTRACTOR.

Compute overtime pay at a rate of one and one-half of the regular rate of pay for Resident Project Representative based on the actual hours worked. Overtime payments will be accumulated monthly and deducted from CONTRACTOR's monthly partial payment estimates.

SC-6.02.D. Add the following after paragraph 6.02.C. of the General Conditions:

1. Payment of Resident Project Representative beyond Construction Contract Completion Time:

CONTRACTOR shall be responsible for both regular and overtime pay for Resident Project Representatives for observation of construction beyond the Contract Completion Time. This requirement is in effect during the time period from the Contract expiration date to the date on which OWNER receive written certification of completion from ENGINEER. CONTRACTOR shall NOT be responsible for Resident Project Representatives pay for authorized time extensions granted by OWNER.

Compute overtime pay at a rate of one and one-half of the regular rate of pay for Resident Project Representatives on actual hours worked. Overtime payments will be accumulated monthly and deducted from CONTRACTOR's monthly partial payment estimates.

SC-6.06.B. Add the following after paragraph 6.06.B. of the General Conditions:

1. Within 15 days after the effective date of the Agreement, CONTRACTOR shall submit to ENGINEER for review a list in duplicate of the names of proposed manufacturers, materialmen, suppliers and subcontractors. Obtain approval of this list by OWNER prior to submission of any shop drawings or product data.

SC-6.08 Add the following 6.08.B, 6.08.C after paragraph 6.08.A. of the General Conditions:

SC-6.08.B. OWNER has obtained the following permits:

1. Indiana Department of Environmental Management Construction Permit

2. Tippecanoe County Soil and Water Conservation District / IDEM Rule 5 General Storm Water Runoff Permit
3. Tippecanoe County Right-of-Way Permit
4. Indiana Department of Transportation Right Of Way Permit

SC-6.08.C. CONTRACTOR shall comply with all permit conditions that apply to the Work or execution thereof. Conditions that apply include:

1. Deposition of excavated materials and all earthwork operations will be carried out in such a manner that soil erosion and sediment runoff to any nearby watercourse are controlled and minimized.
2. Compliance with Federal and State laws that require Work to stop and the following offices to be notified if any archaeological artifacts are uncovered during construction:

Division of Historic Preservation
(317-232-1646)

Department of the Army Corps of Engineers
(313-226-2222)

3. The CONTRACTOR shall not impede the navigation of such waters, nor injure, damage, impair or endanger any bridge, highway, railroad, public work or utility, or the property of a riparian owner, adjoining proprietor or adjacent permittee, nor endanger the safety of the public or lives of individuals.

SC-6.10 Add the following language at the end of paragraph 6.10 of the General Conditions:

Materials and equipment that are purchased for this project that will become the property of the OWNER are exempt from sales tax. CONTRACTORS purchasing materials or equipment for the project shall register with the Indiana Department of Revenue for the sales tax exemption. To register, a federal tax ID number, a business address and a fee are required.

SC-6.13 Add the following new paragraphs 6.13.A.4., 6.13.A.5., 6.13.A.6., and 6.13.A.7. after paragraph 6.13.A.3. of the General Conditions which shall read as follows:

4. No Duty. The duty of the OWNER or ENGINEER to observe CONTRACTOR's performance does not include any review of the adequacy of CONTRACTOR's safety measures in, on, or near the Work site or sites. ENGINEER has not been retained or compensated to provide design and construction review services relating to CONTRACTOR's safety precautions required for CONTRACTOR to perform the Work.
5. No Liability. Neither the OWNER, nor any official or employee of the OWNER, nor the ENGINEER, or any authorized assistant or agent of any of them, shall be responsible for safety precautions and programs in connection with the Work or any liability arising therefrom.
6. Protection of OWNER's Operations. The CONTRACTOR shall take all necessary precautions so as to cause no unauthorized interruption in any essential part of the wastewater sewer system. Sewer system operations must be maintained at the same level during construction as existed prior to construction.

Shutdowns for construction Work shall be scheduled in advance (minimum 14 days advance notice), carefully planned, and shall be carried out in close cooperation with the OWNER.

The OWNER shall retain the authority to require the cessation of construction activities and return to service of any component of the wastewater collection system should the need arise.

7. Special Requirements for Structural Design. All structures to be provided by the CONTRACTOR, (except those structures for which details are shown on the Drawings), that require structural design shall be designed and constructed under the observation of a structural engineer, registered in the State of the Project, acting for and retained by the CONTRACTOR. Drawings and calculations for such structures shall be prepared and sealed by the structural engineer and submitted to the ENGINEER for record. A clear outline of the proposed construction procedure shall be shown on the drawings. A statement in writing by the structural engineer attesting that said engineer has visited the Work site or sites, that the design does satisfy the conditions as actually encountered and that the actual construction conforms to the drawings and calculations, as submitted, must be submitted to the ENGINEER before the Work related to such structures will be considered complete.

All temporary structures, including sheeting and bracing for excavations, that affect the safety of the public, workmen, inspectors,

or OWNER's or ENGINEER's personnel shall be regarded as structures that require structural design.

SC-6.17.E Add a new paragraph 6.17.E.4. immediately after paragraph 6.17.E.3. of the General Conditions which is to read as follows:

4. ENGINEER, generally, will process shop drawings and return them to the CONTRACTOR in not more than 10 working days from day of receipt. If the nature of the shop drawing is such that the review cannot be completed in 10 working days, ENGINEER will advise the CONTRACTOR giving a schedule for performing the review.

SC-6.21 Add a new paragraph 6.21 immediately after paragraph 6.20 of the General Conditions which is to read as follows:

6.21 Confined Space Entry

CONTRACTOR shall be responsible for establishing and implementing a confined space entry program in accordance with 29 CFR 1910 and other pertinent laws or regulations. CONTRACTOR shall require all subcontractors to implement and comply with CONTRACTOR's confined space entry program.

SUPPLEMENTARY CONDITIONS TO ARTICLE 7. OTHER WORK

SC-7.02 Add a new paragraph 7.02.C. immediately after paragraph 7.02.B. of the General Conditions which shall read as follows:

- C. Should CONTRACTOR cause damage to the Work or property of any separate CONTRACTOR at the site, or should any claim arising out of CONTRACTOR's performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, ENGINEER's Consultants, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER, ENGINEER, and ENGINEER's Consultants harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER, ENGINEER, or ENGINEER's Consultants to the extent based on a claim arising out of CONTRACTOR's performance of the Work. Should a separate

contractor cause damage to the Work or property of CONTRACTOR or should the performance of Work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, or ENGINEER's Consultants or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER, ENGINEER, or ENGINEER's Consultants on account of any such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be CONTRACTOR's exclusive remedy with respect to OWNER, ENGINEER, and ENGINEER's Consultants for any delay, disruption, interference or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER, ENGINEER, or ENGINEER's consultant for activities that are their respective responsibilities.

SUPPLEMENTARY CONDITIONS TO ARTICLE 9. ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.04 Delete the first sentence of paragraph 9.04A of the General Conditions and insert the following in its place:

- A. ENGINEER will issue, within five working days of receipt, such written clarifications or interpretations of the requirement of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. If ENGINEER determines, based upon the nature of the requested clarification or interpretation, that the response cannot be furnished in five working days, ENGINEER will advise the CONTRACTOR giving a schedule for furnishing the information.

SUPPLEMENTARY CONDITIONS TO ARTICLE 11. COST OF WORK; CASH ALLOWANCES; UNIT PRICE WORK

SC-11.03 Delete paragraph 11.03.C of the General Conditions in its entirety and insert the following in its place:

- C. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:

1. If the total cost of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement: and
2. If there is no corresponding adjustment with respect to any other item of Work; and
3. If CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SUPPLEMENTARY CONDITIONS TO ARTICLE 12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC-12.06 Delete paragraph 12.06 of the General Conditions in its entirety and insert the following in its place:

12.06 Delay Damages

- A. No claim for payment, compensation or adjustment of any kind (other than the extensions of time provided for herein) shall be made or asserted against the OWNER or ENGINEER by the CONTRACTOR for damages caused by hindrances or delays from any cause, whether such hindrances or delays be avoidable or unavoidable, and the CONTRACTOR shall make no claim for damages by reason of any such hindrances or delays, and will accept in full satisfaction of such hindrances or delays an extension of time to complete the performance of the Work as specified.

SUPPLEMENTARY CONDITIONS TO ARTICLE 13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-13.03 Delete paragraph 13.03.B of the General Conditions in its entirety and insert the following in its place:

- B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests or approvals

required by the Contract Documents except as otherwise specifically provided in the Contract Documents.

SUPPLEMENTARY CONDITIONS TO ARTICLE 14. PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.05 Add a new paragraph immediately after paragraph 14.05.A.2. of the General Conditions, which is to read as follows:

3. OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER and within a reasonable time thereafter OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such lists to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance warranties and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

SC-14.10 Add a new paragraph immediately after paragraph 14.09 of the General Conditions, which is to read as follows:

14.10 Audits, Access to Records

- A. The Contractor shall maintain books, records, documents, and other evidence directly pertinent to performance of work under this agreement in accordance with generally accepted accounting principles and practices consistently applied in effect on the date of execution of this agreement. The Contractor shall also maintain the financial information and data used by the Contractor in the preparation or support of the cost submission required for any

negotiated change order and a copy of the cost summary submitted to the OWNER.

- B. The OWNER or any of its authorized representatives shall have access to all such books, records, documents, and other evidence for the purpose of inspection, audit and copying during normal business hours. The Contractor will provide proper facilities for such access and inspection.
- C. The Contractor agrees to make paragraphs A. through C. of this clause applicable to all negotiated change orders and agreement amendments affecting the agreement price.
- D. Audits conducted under this provision shall be in accordance with generally accepted auditing standards.

SUPPLEMENTARY CONDITIONS TO ARTICLE 17. MISCELLANEOUS

SC-17.06 Add a new paragraph immediately after paragraph 17.05 of the General Conditions, which is to read as follows:

17.06 Wage Rates

Wage rates for the Work shall not be less than the current prescribed wage scale for Tippecanoe County, Indiana. The prevailing wages applicable to this project are attached as **Exhibit A** and made a part of the Supplementary Conditions.

SC-17.07 Add a new paragraph immediately after paragraph 17.06 of the General Conditions, which is to read as follows:

17.07 Prohibition of Discrimination

The CONTRACTOR agrees:

- A. That in the hiring of employees for the performance of work under this Contract or any subcontract hereunder, no contractor, or subcontractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, religion, color, sex, national origin or ancestry, discriminate against any citizen of the state of Indiana who is qualified and available to perform the work to which the employment relates;
- B. That no contractor, subcontractor, or any person on his behalf shall in any manner, discriminate against or intimidate any employee hired for

the performance of work under this contract on account of race, religion, color, sex, national origin or ancestry;

- C. That there may be deducted from the amount payable to the contractor under this contract, a penalty of five dollars [\$5.00] for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the Contract; and
- D. That this Contract may be canceled or terminated by the OWNER and all money due to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this section of the Contract.

SC-17.08 Add a new paragraph immediately after paragraph 17.07 of the General Conditions, which is to read as follows:

17.08 Severability

- A. If any portion of the Contract Documents is invalid or unenforceable pursuant to applicable law, such portion shall be void in the jurisdiction where it is invalid or unenforceable, and the remainder of the Contract Documents shall remain binding upon the parties hereto.

SC-17.9 Add a new paragraph immediately after paragraph 17.08 of the General Conditions, which is to read as follows:

17.09 Compliance With E-Verify Program.

- A. Pursuant to IC 22-5-1.7, CONTRACTOR shall enroll in and verify the work eligibility status of all newly hired employees of CONTRACTOR through the E-Verify Program (“Program”). CONTRACTOR is not required to verify the work eligibility status of all newly hired employees through the Program if the Program no longer exists.
- B. CONTRACTOR and its Subcontractors shall not knowingly employ or contract with an unauthorized alien or retain an employee or contract with a person that CONTRACTOR or its Subcontractor subsequently learns is an unauthorized alien. If CONTRACTOR violates this Section 17.09, OWNER shall require CONTRACTOR to remedy the violation not later than thirty (30) days after OWNER notifies CONTRACTOR. If CONTRACTOR fails to remedy the violation within the thirty (30) day period, OWNER shall terminate the contract for breach of contract. If OWNER terminates the contract, CONTRACTOR shall, in addition to any other contractual remedies,

be liable to OWNER for actual damages. There is a rebuttable presumption that CONTRACTOR did not knowingly employ an unauthorized alien if CONTRACTOR verified the work eligibility status of the employee through the Program.

- C. If CONTRACTOR employs or contracts with an unauthorized alien but OWNER determines that terminating the contract would be detrimental to the public interest or public property, OWNER may allow the contract to remain in effect until OWNER procures a new contractor.
- D. CONTRACTOR shall, prior to performing any work, require each Subcontractor to certify to CONTRACTOR that the Subcontractor does not knowingly employ or contract with an unauthorized alien and has enrolled in the Program. CONTRACTOR shall maintain on file a certification from each Subcontractor throughout the duration of the Project. If CONTRACTOR determines that a Subcontractor is in violation of this Section 17.09, CONTRACTOR may terminate its contract with the Subcontractor for such violation. Such termination may not be considered a breach of contract by CONTRACTOR or the Subcontractor.
- E. CONTRACTOR and its Subcontractors shall, prior to performing any work, submit executed affidavits which state they will not knowingly employ illegal aliens. An affidavit (approved by the State Board of Accounts) can be obtained from the following website: <http://www.citiesandtowns.org/egov/docs>.

END OF SECTION

EXHIBIT A
WAGE RATES

TECHNICAL SPECIFICATIONS

SECTION 01110
SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of Work
- B. Constraints
- C. Work by Others
- D. CONTRACTOR's Use of Site
- E. Work Sequence
- F. Owner Occupancy

1.2 DESCRIPTION OF WORK

- A. General: The Work to be done under this Contract consists of:
 - 1. The construction of approximately 7,200 feet of 18-inch sanitary sewer pipe and associated manholes, from McCormick Road south of Lindberg Road to Cumberland Avenue. This work includes one bore and jack crossing of Lindberg Road.

The Work is shown and specified in the Contract Documents entitled City of West Lafayette, Indiana, Cumberland Avenue Sanitary Sewer Extension.

- B. The Work includes:
 - 1. Furnishing of all labor, material, superintendence, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, services and other means of construction necessary or proper for performing and completing the Work.
 - 2. Sole responsibility for adequacy of plant and equipment.
 - 3. Maintaining the Work area and site in a clean and acceptable manner.

4. Maintaining existing facilities in service at all times except where specifically provided for otherwise herein.
 5. Protection of finished and unfinished Work.
 6. Repair and restoration of Work damaged during construction.
 7. Furnishing as necessary proper equipment and machinery, of a sufficient capacity, to facilitate the Work and to handle all emergencies normally encountered in Work of this character.
- C. Implied and Normally Required Work: It is the intent of these Specifications to provide the OWNER with complete operable systems, subsystems and other items of Work. Any part or item of Work which is reasonably implied or normally required to make each installation satisfactorily and completely operable is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Specifications are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in these Specifications.
- D. Quality of Work: Regard the apparent silence of the Contract Documents as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Interpretation of these specifications will be made upon this basis.

1.3 CONSTRAINTS

- A. The Contract Documents are intended to allow the CONTRACTOR flexibility in construction of the Work, however, the following constraints apply:
1. Maintain flow in sanitary sewers and force mains at all times. Maintain wastewater lift stations in operation at all times. Any Work which affects the existing wastewater facilities must be carried out so that the operation of the existing facilities will not be jeopardized or materially reduced in efficiency as a result of the Work.
 2. Maintain two-way vehicular access to the city streets, businesses and private drives at all times during the Work. Prosecute the Work in such a manner that property owners and businesses will experience minimal access disruption. Maintain access to residential drives at all times where possible. At least one access must be maintained at all commercial businesses. For those drive approaches to be closed for their construction, submit notification to the business or property owner 72 hours prior to such closings. The approaches at businesses with only one access point shall be constructed

one-half at a time so that traffic can be maintained at all times. If construction of an approach one-half at a time does not provide the required access, then other provisions or temporary access by other means shall be provided to the property owner or business.

3. Perform the Work in strict accordance within the right-of-way, construction limits or easements.

B. Coordinate in advance with the OWNER all interruptions to existing facilities.

C. Perform connections to existing facilities or operations that interfere with the operation of the existing equipment as quickly as possible and with as little delay as possible.

1.4 WORK BY OTHERS

A. Work on other projects, may take place concurrently with this CONTRACT and these are excluded from this CONTRACT. Coordinate work schedules to accommodate simultaneous projects.

1.5 CONTRACTOR'S USE OF SITE

A. In addition to the requirements of Articles 6.11 of the General Conditions, limit use of site and premises for work and storage to allow for the following:

1. Coordination of the Work under this CONTRACT with the work of the other contractors where Work under this CONTRACT encroaches on the Work of other contractors.

2. OWNER occupancy and access to operate existing facilities.

3. Coordination of site use with ENGINEER.

4. Responsibility for protection and safekeeping of products under this CONTRACT.

5. Provide additional off-site storage as needed at no additional cost to OWNER.

1.6 WORK SEQUENCE

A. Construct Work in stages to accommodate OWNER's use of premises during construction period and in accordance with the limitations on the sequence of construction specified. Coordinate construction schedules and operations with ENGINEER. Coordinate Work of all Subcontractors.

- B. Submit for acceptance a detailed description of the sequence of construction prior to commencing construction.

1.7 OWNER OCCUPANCY

- A. Cooperate with OWNER's representative in all construction operations to minimize conflict, and to facilitate OWNER usage.
- B. Conduct operations so as to inconvenience the general public in the least.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- A. Starting Work: Start Work within 10 days following the date stated in the Notice to Proceed and execute with such progress as may be required to prevent delay to other contractors or to the general completion of the project. Execute Work at such items and in or on such parts of the project, and with such forces, material and equipment, as to complete the Work in the time established by the Contract. At all times, schedule and direct the Work so that it provides an orderly progression to completion within the specified time for completion.

END OF SECTION

SECTION 01250

CHANGE ORDER AND WORK ORDER PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Definitions
- B. Change Orders
- C. Work Orders

1.2 DEFINITIONS

- A. Change Order: Refer to the Change Order definition in Article 1 of the General Conditions.
- B. Work Order: Work Order is a written directive to the CONTRACTOR issued on or after the effective date of the agreement; signed by the OWNER, recommended by the ENGINEER, ordering an addition, deletion, or revision in the Work. A Work Order will subsequently be followed by the issuance of a Change Order.
- C. Overhead: Overhead is defined as the cost of administration, field office and home office costs, general superintendence, office engineering and estimating costs, other required insurance, materials used in temporary structures (not including form work), additional premiums on the performance bond of the CONTRACTOR, the use of small tools, scheduling costs, and all other costs incidental to the performance of the change or the cost of doing business.

1.3 CHANGE ORDERS

- A. Initiation of Proposals:
 - 1. From time to time, the OWNER or the ENGINEER may issue a Request for a Change Order Proposal. The Request will contain a description of the intended change with supplementary or revised Drawings and Specifications as applicable, and the projected time for accomplishing the change.
 - 2. The CONTRACTOR may propose a change in the Work by submittal of a Change Order Request to the ENGINEER describing the proposed change with

a statement of the reason for the change and the effect on the Contract time and price, along with supporting documentation.

B. Execution of Change Order Proposal:

1. When a Proposal is requested for changed work, submit proposal within 14 days following receipt of the Request from OWNER or ENGINEER. State the increase or decrease, if any, in Contract Completion time and Contract Price.
2. Explain proposal in sufficient detail to permit review by OWNER.
3. For Omitted Work the decrease in the Contract Price will be determined by the ENGINEER and will include appropriate amounts for profit and overhead.
4. The OWNER and ENGINEER will review the Proposal and may request additional information and documentation. Provide these items upon request.
5. If the OWNER decides to proceed with the change, the OWNER will issue a Change Order for signature first by the CONTRACTOR and then by the OWNER.
6. The CONTRACTOR will promptly complete the approved change in the Work on receipt of the executed Change Order.
 - a. Failure to sign the Change Order does not relieve the CONTRACTOR from performing the Work if the Change Order is signed by the OWNER.

C. Compute the cost of both additive and deductive changes in the Work in accordance with Article 12 of the General Conditions and as follows:

1. Include, the costs of labor, crew foreman and general foreman performing or directly supervising the changed Work on the site. Include travel and subsistence, but only to the extent incurred.
2. To the labor cost add all net premium for Workman's Compensation, taxes pursuant to the Federal Social Security Act, and payments required under State and Federal unemployment laws.
3. Add necessary extra materials, delivered at the site.

4. Include rent for plant and equipment at unit rental costs for similar rentals from an independent firm (i.e. a firm which is not owned in whole or in part by the CONTRACTOR). If equipment is owned by CONTRACTOR or rented from a firm in which the CONTRACTOR has an interest, calculate the rent in accordance with the applicable provisions and terms of the current "Cost Reference Guide for Construction Equipment" published by Dataquest.
5. Include Subcontractor's costs, determined by items 1 through 4 in the preceding subparagraphs, including a maximum overhead and profit to the subcontractor of 15 percent.
6. For work performed by the CONTRACTOR add 15 percent for overhead and profit to items 1 through 4 above. Add 5 percent to overhead and profit of item 5.

1.4 WORK ORDERS

- A. Initiation by OWNER: OWNER may issue a Work Order with a Notice to Proceed without a prior Request for a Change Order Proposal or the CONTRACTOR's signature.
- B. Payment Determination: The OWNER will designate the method of determining the amount of compensation or credit, if any, based on one of the methods contained in Article 12 of the General Conditions.
- C. Timing: Proceed with the change in the Work immediately upon receipt of the Work Order.
- D. Addition to Contract: The Work Order will be incorporated into the Contract Documents via a Change Order at a later date.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01290

PAYMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule of Values
- B. Application for Payment

1.2 SCHEDULE OF VALUES

- A. Approval of Schedule: Submit for approval a preliminary schedule of values, in duplicate, for all of the Work. Prepare preliminary schedule in accordance with paragraph 2.05 of the General Conditions. Submit preliminary schedule of values within 15 calendar days after date established in Notice to Proceed. Submit final schedule of values in accordance with Paragraph 2.07 of the General Conditions.
- B. Format: Use a format similar to the Table of Contents of the Project Specifications. Identify each line item with number and title of the major specification section. Identify site mobilization, bonds and insurance. Include within each line item, a direct proportional amount of CONTRACTOR'S overhead and profit.
- C. Revisions: With each Application for Payment revise schedule to list approved Change Orders.

1.3 APPLICATION FOR PAYMENT

- A. Required Copies: Submit three copies of each application on a form approved by the OWNER. Present required information in typewritten form or on electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Schedule of Values.
- D. Stored Materials: When payment for materials stored is permitted, submit a separate schedule for Materials Stored showing line item, description, previous value received, value incorporated into the Work and present value.

- E. Change Orders: List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of work.
- F. Final Payment: Prepare Application for Final Payment as required in Article 14.07 of the General Conditions.
- G. Record Drawings: CONTRACTOR shall keep all record drawings up to date. Recommendation for payment of pay application is subject to Engineer's review and confirmation that all record drawings are up to date.
- H. Submit an updated construction schedule with each Application for Payment.
- I. Submit monthly applications for payment to the ENGINEER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01291

CONTRACT ITEMS

PART 1 GENERAL

1.1 CONTRACT ITEM 1 – MOBILIZATION AND DEMOBILIZATION

- A. Description: The Work under this Contract Item includes furnishing all labor, supervision, equipment and materials necessary for the movement of personnel and equipment to and from the project site and for the establishment of all other facilities necessary to the performance of Work associated with the sanitary sewer.
- B. Payment: The payment for Mobilization and Demobilization shall be based on the contract lump sum price and shall not exceed five (5) percent of the total of the sum of the remaining contract items. For the purpose of payment, the mobilization portion of this item will be limited to sixty (60) percent of the lump sum price of this item. The balance of the lump sum price will be considered demobilization and will be paid when all Work and final clean up is completed.

1.2 CONTRACT ITEM 2 – MAINTENANCE OF TRAFFIC

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services for the maintenance of traffic associated with the sanitary sewer, including pedestrian traffic, together with all associated and appurtenant Work as shown, specified (Section 01500) and directed.

The Work includes provision of fencing, barrels, cones, barricades, flagmen, detour signage and other associated items to protect the workmen and the public; provision of adequate means to safely direct vehicular and pedestrian traffic past the point of construction; provision of safely conducting vehicular and pedestrian traffic at all other points that are affected by the Work at all times; maintain access to all property as much as possible; coordination with property owner and/or occupant (s) when there is a loss of access; and all associated Work, materials, and equipment necessary for the maintenance of traffic in accordance with the Contract Documents.

- B. Payment: Payment for Maintenance of Traffic will be made at the Contract lump sum price for this item.

1.3 CONTRACT ITEM 3 – 18-INCH PVC (SDR 26) SANITARY SEWER

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain the sanitary sewer, together with all associated and appurtenant Work as shown, specified and directed. The Work includes erosion control measures, establishing survey control points, maintenance of traffic, site clearing as necessary; earth excavation; sheeting, shoring, bracing; dewatering; removal and disposal of surfaces and spoil where required;

furnishing and installing sanitary sewer pipe, fittings and appurtenances; making all pipe connections; pipe bedding; backfilling and compaction; testing; cleaning and televising; protection of existing structures and buried utilities; protection and replacement of all trees and shrubs; restoration of surfaces and structures damaged by sewer construction; and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 18-inch PVC (SDR 26) Sanitary Sewer will be made at the Contract unit price per lineal foot.

1.4 CONTRACT ITEM 4 – 18-INCH PVC (DR 18) SANITARY SEWER

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain the gravity sewer pipe, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures, establishing survey control points, maintenance of traffic, site clearing as necessary, earth excavation, sheeting, shoring, bracing, dewatering, removal and disposal of surfaces and spoil where required, furnishing and installing sanitary sewer pipe, fittings and appurtenances, pipe bedding, backfilling and compaction, testing, cleaning and televising, protection of existing structures and buried utilities, restoration of surfaces and structures damaged by sewer construction, and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 18-inch PVC (DR 18) Sanitary Sewer will be made at the Contract unit price per lineal foot.

1.5 CONTRACT ITEM 5 – 18-INCH LINED DIP CLASS 53 SANITARY SEWER

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain the gravity sewer pipe, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures, establishing survey control points, maintenance of traffic, site clearing as necessary, earth excavation, sheeting, shoring, bracing, dewatering, removal and disposal of surfaces and spoil where required, furnishing and installing gravity sewer pipe, fittings and appurtenances, interior pipe lining as specified, polyethylene encasement, pipe bedding, backfilling and compaction, testing, cleaning and televising, protection of existing structures and buried utilities, restoration of surfaces and structures damaged by gravity sewer construction, and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 18-inch Lined DIP Class 53 Sanitary Sewer will be made at the Contract unit price per lineal foot.

1.6 CONTRACT ITEM 6 – 18-INCH LINED DIP CLASS 53 SANITARY SEWER UNDER LINDBERG ROAD

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain the casing and carrier pipe, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures, establishing survey control points, maintenance of traffic, site clearing as necessary, earth excavation, sheeting, shoring, bracing, dewatering, removal and disposal of surfaces and spoil where required, furnishing and installing casing pipe using trenchless construction methods, furnishing and installing lined DI sewer pipe, furnishing and placement of casing spacers and end seals, backfilling and compaction, testing, cleaning and televising protection of existing structures and buried utilities, restoration of surfaces and structures damaged by construction operations, and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 18-inch Lined DIP Class 53 Sanitary Sewer Under Lindberg Road will be made at the Contract unit price per lineal foot.

1.7 CONTRACT ITEM 7 – 48-INCH SANITARY MANHOLE

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain precast concrete manholes, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures; establishing survey control points; site clearing as necessary; earth excavation; sheeting, shoring, bracing; dewatering; removal and disposal of surfaces and spoil where required; furnishing and installing precast concrete manholes; manhole structure bedding; backfilling and compaction; flexible pipe to manhole connectors; external chimney seals; adjusting rings; castings and covers; making pipe connections to manholes; protection of existing structures and buried utilities; protection and replacement of all trees and shrubs; restoration of surfaces and structures damaged by manhole construction; testing and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 48-inch Sanitary Manhole will be made at the Contract unit price for each.

1.8 CONTRACT ITEM 8 – 60-INCH SANITARY MANHOLE

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain precast concrete

manholes, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures; establishing survey control points; site clearing as necessary; earth excavation; sheeting, shoring, bracing; dewatering; removal and disposal of surfaces and spoil where required; furnishing and installing precast concrete manholes; manhole structure bedding; backfilling and compaction; flexible pipe to manhole connectors; external chimney seals; adjusting rings; castings and covers; making pipe connections to manholes; protection of existing structures and buried utilities; protection and replacement of all trees and shrubs; restoration of surfaces and structures damaged by manhole construction; testing and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 60-inch Sanitary Manhole will be made at the Contract unit price for each.

1.9 CONTRACT ITEM 9 – 60-INCH SANITARY OUTSIDE DROP MANHOLE

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain precast concrete inside drop manhole, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures; establishing survey control points; site clearing as necessary; earth excavation; sheeting, shoring, bracing; dewatering; removal and disposal of surfaces and spoil where required; furnishing and installing precast concrete manholes; manhole structure bedding; backfilling and compaction; flexible pipe to manhole connectors; drop pipe, sewer stub, sewer stub cap, external chimney seals; adjusting rings; castings and covers; making pipe connections to manholes; protection of existing structures and buried utilities; protection and replacement of all trees and shrubs; restoration of surfaces and structures damaged by manhole construction; testing and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 60-inch Sanitary Outside Drop Manhole will be made at the Contract unit price for each.

1.10 CONTRACT ITEM 10 – 60-INCH SANITARY INSIDE DROP MANHOLE

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to install, test, and maintain precast concrete inside drop manhole, together with all associated and appurtenant Work as shown, specified and directed.

The Work includes erosion control measures; establishing survey control points; site clearing as necessary; earth excavation; sheeting, shoring, bracing; dewatering;

removal and disposal of surfaces and spoil where required; furnishing and installing precast concrete manholes; manhole structure bedding; backfilling and compaction; flexible pipe to manhole connectors; external chimney seals; adjusting rings; castings and covers; making pipe connections to manholes; protection of existing structures and buried utilities; protection and replacement of all trees and shrubs; restoration of surfaces and structures damaged by manhole construction; testing and all associated Work, materials, and equipment necessary to complete the construction in accordance with the Contract Documents.

- B. Payment: Payment for 60-inch Sanitary Inside Drop Manhole will be made at the Contract unit price for each.

1.11 CONTRACT ITEM 11 – ADDITIONAL EARTH EXCAVATION

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to perform additional earth excavation ordered in writing.

The Work includes all clearing, protection of the structures and adjacent property; placing, maintenance, and removal of shoring, sheeting and bracing; removal of water; backfilling; disposal of surplus material excavated material; and other Work appurtenant to the additional earth excavation as specified.

- B. Measurement for Payment: The quantity of Additional Earth Excavation to be measured for payment under this Contract Item will be the total excavation, as ordered and approved, beyond and outside the established lines and grades which would have controlled and been maintained had not the additional excavation been ordered. Additional earth excavation for placement as select fill material other than that for pipe bedding or to permit construction of other types of pipeline foundations will be included for payment under this Contract Item. Unauthorized additional earth excavation will not be measured or paid for.
- C. Payment: Payment for Additional Earth Excavation ordered in writing will be made at the Contract unit price per cubic yard.

1.12 CONTRACT ITEM 12 – ADDITIONAL SELECT FILL MATERIAL

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services to place and compact select fill material which may be required in addition to that shown or specified. Excavation for placement of additional select fill material will be paid for under other Contract Items. Provide select fill material that meets the requirements of Section 02317 Backfilling. Only material which has been ordered in writing and approved will be paid for under this Contract Item.

- B. Measurement for Payment: The quantity of Additional Select Fill Material to be measured for payment under this Contract Item will be the volume of select fill material, compacted in place, within the limiting lines shown or directed. Select fill

material used to fill voids resulting from unauthorized excavation, or where required for dewatering, will not be measured for payment even though its use is ordered. Select fill material for pipe bedding will not be measured for payment under this Contract Item.

- C. Payment: Payment for Additional Select Fill Material ordered in writing will be made at the Contract unit price per cubic yard.

1.13 CONTRACT ITEM 13 – WORK ALLOWANCE

- A. Description: The Work under this Contract Item includes furnishing all labor, materials, equipment and services necessary to perform the additional miscellaneous work as directed by the Owner. This work is not shown on the drawings or specified, but which is subsequently identified by the Engineer as being necessary to complete the project. When work is required under this Item, the Contractor will be sent a request for proposal by the Engineer. If the proposal is accepted by the Owner, the Contractor will be notified to proceed with the required work. All work will be performed by the Contractor's own forces to the greatest extent possible. An allowance of twenty-five thousand dollars (\$25,000) is included in this item. This allowance will be used to compensate the Contractor for work performed under this item. No Work will be performed under this allowance without the consent of the Owner.
- B. Payment: Payment for Work Allowance will be made from the Contract lump sum price. At the completion of the Contract, all remaining funds will be deducted from the total contract price.

1.14 CONTRACT ITEM 14 – INCENTIVE PAYMENTS

- A. Description: The Work under this Contract Item includes Incentive Payments for achieving Substantial Completion in advance of time established in Section 00500. Acceptance of Work as Substantially Complete and issuance of Incentive Payments will be at the sole discretion of the OWNER. Incentive Payments shall be based on calendar days and total payment shall not exceed fifteen thousand dollars (\$15,000). An allowance of \$15,000 is included in this item.
- B. Payment: Incentive Payments will be made from the Contract unit price per day (i.e., number of calendar days for early substantial completion multiplied by the unit price of \$1,000 per calendar day with up to a 15 calendar day maximum). At the completion of the Contract, all remaining funds will be deducted from the total contract price.

END OF SECTION

SECTION 01310

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination
- B. Preconstruction Conference
- C. Progress Meetings

1.2 COORDINATION

- A. General: Coordinate scheduling, submittals, and Contract work to assure efficient and orderly sequence of installation of interdependent construction elements.

1.3 PRECONSTRUCTION CONFERENCE

- A. General: Prior to commencement of the Work, in accordance with paragraph 2.06 of the General Conditions, the OWNER will conduct a preconstruction conference to be held at a predetermined date and time in West Lafayette, Indiana.
- B. Delineation of Responsibilities: The purpose of the conference is to designate responsible personnel, to establish a working relationship among the parties and to identify the responsibilities of the OWNER, ENGINEER and the CONTRACTOR. Matters requiring coordination will be discussed and procedures for handling such matters, established. The agenda will include:
 - 1. Submittal procedures
 - 2. Partial Payment procedures
 - 3. Maintenance of Records
 - 4. Schedules, Sequence of Construction
 - 5. Maintenance of Traffic
 - 6. Permits
 - 7. Change Orders
 - 8. Use of site
 - 9. Housekeeping
 - 10. Equipment delivery

- C. Attendees: The preconstruction conference is to be attended by the representatives of the CONTRACTOR, the OWNER and the ENGINEER who will be associated with the project. Representatives of regulatory agencies, subcontractors, and principal suppliers may also attend when appropriate.
- D. Chair and Minutes: The preconstruction conference will be chaired by the ENGINEER who will also arrange for the keeping and distribution of minutes to all attendees.

1.4 PROGRESS MEETINGS

- A. Meeting Frequency and Format: Schedule progress meetings on a monthly basis or more frequently as warranted by the complexity of the Project, to review the Work, discuss changes in schedules, maintain coordination and resolve potential problems. Invite OWNER, ENGINEER and all subcontractors. Suppliers may be invited as appropriate. Meeting notes will be maintained by the ENGINEER and distributed to attendees within 5 calendar days after each meeting.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01325

PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Form of Schedules
- B. Content of Schedules
- C. Schedule Revisions
- D. Submittal Requirements

1.2 FORM OF SCHEDULES

- A. Prepare schedules in form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Use a horizontal time scale and identify first workday of each week.
 - 3. Use scale and spacings to allow space for notations and future revisions.
- B. Use a listing format which chronologically indicates the order of start of each item of work.
- C. Identify each listing by major specification section numbers.

1.3 CONTENT OF SCHEDULES

- A. Completion Dates: Show the beginning and ending contract dates stated in documents. Schedules showing completion prior to the contract completion date will be accepted but in no event will they be considered basis for a claim for delay against the OWNER by the CONTRACTOR for the period between the early completion date and the completion date provided in the Contract Documents.
- B. Show complete sequence of construction by activity.

- C. Show dates for beginning and completion of each major element of construction for each milestone completion date. Elements shall include, but not be limited to, the following:
1. Shop drawing receipt from supplier/manufacturer submitted to ENGINEER, review and return to supplier/manufacturer
 2. Material and equipment order, manufacturer, delivery, installation, and checkouts
 3. Performance tests and supervisory services activity
 4. Preconstruction activities – staking construction limits, installing erosion control devices and temporary fencing,
 5. Site clearing
 6. Structure, equipment, and piping demolition
 7. Excavation, sheeting, shoring, dewatering
 8. Concrete placement sequence
 9. Sewer installation
 10. Connection to existing sewers
 11. Miscellaneous concrete placement
 12. Subcontractor's items of work
 13. Backfilling, grading, seeding, sodding, landscaping, sidewalk construction, and paving
 14. Sewer and manhole testing
 15. Final cleanup
 16. Allowance for inclement weather
- D. Show projected percentage of completion for each item as of first day of each month.

1.4 SCHEDULE REVISIONS

- A. As a minimum, revise construction schedule every 30 calendar days to reflect changes in progress of Work for duration of Contract.
- B. Indicate progress of each activity at date of submittal.
- C. Show changes occurring since previous submittal of schedule.
 - 1. Major change in scope
 - 2. Activities modified since previous submittal
 - 3. Revised projections of progress and completion
 - 4. Other identifiable changes
- D. Provide a written report as needed to define:
 - 1. Problem areas, anticipated delays, and impact on schedule
 - 2. Corrective action recommended and its effect
 - 3. Effect of changes on schedules of other Contractors

1.5 SUBMITTAL REQUIREMENTS

- A. Before Construction: Submit three copies of preliminary construction progress schedule to ENGINEER for acceptance in accordance with paragraph 2.07 of the General Conditions.
- B. During Construction: Submit three copies of the monthly construction progress schedule to ENGINEER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01330

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of Requirements
- B. Submittal Procedures
- C. Specific Submittal Requirements
- D. Action on Submittals
- E. Repetitive Review

1.2 DESCRIPTION OF REQUIREMENTS

- A. This section specifies procedural requirements for Shop Drawings, product data, samples, and other miscellaneous Work-related submittals.
- B. Procedures concerning items such as listing of manufacturers, suppliers, subcontractors, construction progress schedule, bonds, payment applications, insurance certificates, and schedule of values are specified elsewhere.
- C. Work-Related Submittals:
 - 1. Substitution or "Or Equal" Items:
 - a. Includes material or equipment CONTRACTOR requests ENGINEER to accept, after Bids are received, as substitute for items specified or described in Specifications by using name of a proprietary item or name of particular supplier.
 - 2. Shop Drawings:
 - a. Includes technical data and drawings specially prepared for this Project, including fabrication and installation drawings, diagrams, actual performance curves, data sheets, schedules, templates, patterns, reports, instructions, design mix formulas, measurements, and similar information not in standard printed form.

b. Standard information prepared without specific reference to the Project is not considered a Shop Drawing.

3. Product Data:

a. Includes standard printed information on manufactured products, and systems that has not been specially prepared for this Project, including manufacturer's product specifications and installation instructions, catalog cuts, printed performance curves, mill reports, and standard color charts.

4. Miscellaneous Submittals:

a. Work-related submittals that do not fit in the previous categories, such as guarantees, warranties, certifications, experience records, maintenance agreements, Operating and Maintenance Manuals, workmanship bonds, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, and similar information, devices, and materials applicable to the Work.

1.3 SUBMITTAL PROCEDURES

A. Scheduling:

1. Submit for approval, a preliminary schedule of shop drawing submittals, in duplicate, and in accordance with Article 2.05.B.2 of the General Conditions.
2. Prepare and transmit each submittal to ENGINEER sufficiently in advance of scheduled performance of related work and other applicable activities.
3. Submit all submittals to ENGINEER within 45 calendar days of Notice-to-Proceed.

B. Coordination:

1. Coordinate preparation and processing of submittals with performance of the Work. Coordinate each submittal with other submittals and related activities such as substitution requests, testing, purchasing, fabrication, delivery, and similar activities that require sequential activity.
2. Coordinate submission of different units of interrelated work so that one submittal will not be delayed by ENGINEER's need to review a related submittal.

3. ENGINEER may return any submittal requiring coordination with other submittals without review and marked “Revise and Resubmit”. This type of returned submittal will be counted as a submittal subject to the provisions of 1.6 – REPETITIVE REVIEWS of this Section.
4. The ENGINEER will not hold a submittal awaiting additional information from the CONTRACTOR.

C. Submittal Preparation:

1. Stamp and sign each submittal certifying to review of submittal, verification of products, field measurement, field construction criteria, coordination of information within submittal with requirements of the Work and the Contract Documents, coordination with all trades, and verification that product will fit in space provided.
2. Transmittal Form: In the transmittal form, forwarding each specific submittal to the ENGINEER, include the following information as a minimum.
 - a. Date of submittal and dates of previous submittals containing the same material.
 - b. Project title and number.
 - c. Submittal and transmittal number.
 - d. Contract identification.
 - e. Names of:
 - (1) Contractor
 - (2) Supplier
 - (3) Manufacturer
 - f. Identification of equipment and material with equipment identification numbers, model numbers, and Specification section number.
 - g. Variations from Contract Documents and any limitations that may impact the Work.
 - h. Drawing sheet and detail number as appropriate.
3. The submittal does not encompass more than one Section of the Specifications.

D. Submittal Numbering:

1. Number all submittals as follows:

(A) - (B)

Where:

(A) = Specification Section Number

(B) = Consecutive submittal number for the Specification Section Number listed in (A), with an alphabetic suffix indicating the sequential version of the submittal.

Examples: 01300-001A indicates the initial version of submittal number 001 for Specification Section 01300.

01300-001B indicates the second version of submittal number 001 for Specification Section 01300.

01300-002A indicates the initial version of submittal number 002 for Specification Section 01300.

2. When a document(s) is resubmitted for any reason, use a new Submittal Transmittal Form with the same submittal number and a new, sequential alphabetic suffix.

E. Resubmittal Preparation:

1. Comply with the requirements described in Submittal Preparation. In addition:
 - a. Identify on transmittal form that submittal is a resubmission.
 - b. Make any corrections or changes in submittals required by ENGINEER's notations on returned submittal.
 - c. Respond to ENGINEER's notations:
 - (1) On the transmittal or on a separate page attached to CONTRACTOR's resubmission transmittal, answer or acknowledge in writing all notations or questions indicated by ENGINEER on ENGINEER's transmittal form returning review submission to CONTRACTOR.

- (2) Identify each response by question or notation number established by ENGINEER.
 - (3) If CONTRACTOR does not respond to each notation or question, resubmission will be returned without action by ENGINEER until CONTRACTOR provides a written response to all ENGINEER's notations or questions.
- d. CONTRACTOR initiated revisions or variations:
- (1) On transmittal form identify variations or revisions from previously reviewed submittal, other than those called for by ENGINEER.
 - (2) ENGINEER's responsibility for variations or revisions is established in Section 6.17.D.3 and 6.17.E.3 of the General Conditions.

1.4 SPECIFIC SUBMITTAL REQUIREMENTS

- A. Specific submittals required for individual elements of work are specified in the individual Specification sections. Except as otherwise indicated in Specification sections, comply with requirements specified herein for each indicated type of submittal.
- B. Requests for Substitution or "Or Equal"
1. Collect data for items to be submitted for review as substitution into one submittal for each item of material or equipment in accordance with Section 6.05 of the General Conditions.
 2. Submit with other scheduled submittals for the material or equipment allowing time for ENGINEER to evaluate the additional information required to be submitted.
 3. If CONTRACTOR requests to substitute for material or equipment specified but not identified in Specifications as requiring submittals, schedule substitution submittal request in Submittal schedule and submit as scheduled.
- C. Shop Drawings:
1. Submit newly prepared information, with graphic information at accurate scale. Indicate name of manufacturer or supplier. Show dimensions and clearly note which are based on field measurement; identify materials and products that are included in the Work; identify revisions. Indicate

compliance with standards and notation of coordination requirements with other work. Highlight, encircle or otherwise indicate variations from Contract Documents or previous submittals.

2. Include on each drawing or page:
 - a. Submittal date and revision dates.
 - b. Project name, division number and descriptions.
 - c. Detailed specifications section number and page number.
 - d. Identification of equipment, product or material.
 - e. Name of CONTRACTOR and Subcontractor.
 - f. Name of Supplier and Manufacturer.
 - g. Relation to adjacent structure or material.
 - h. Field dimensions, clearly identified.
 - i. Standards or Industry Specification references.
 - j. Identification of deviations from the Contract Documents.
 - k. CONTRACTOR's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.
 - l. Physical location and location relative to other connected or attached material at which the equipment or materials are to be installed.
3. Provide 8-inch by 3-inch blank space for CONTRACTOR and ENGINEER stamps.
4. Submittals:
 - a. Submit 6 copies. One copy may be submitted electronically in lieu of 6 hard copies if the nominal size of the documents are no larger than 11"x17".

5. Distribution:
 - a. Do not proceed with installation of materials, products or systems until copy of applicable product data showing only approved information is in possession of installer.
 - b. Maintain one set of shop drawing (for each submittal) at Project site, available for reference by ENGINEER and others.

D. Product Data:

1. Preparation:
 - a. Collect required data into single submittal for each element of work or system. Where product data has been printed to include information on several similar products, some of which are not required for use on Project or are not included in submittal, mark copies to clearly show such information is not applicable.
 - b. Where product data must be specially prepared for required products, materials or systems, because standard printed data are not suitable for use, submit data as a Shop Drawing and not as product data.
2. Submittals:
 - a. Submittal is for information and record, and to determine that products, materials, and systems comply with Contract Documents. Submittal is final when returned by ENGINEER marked "Approved" or "Approved as Noted".
 - b. Submit 6 copies.
3. Distribution:
 - a. Do not proceed with installation of materials, products or systems until copy of applicable product data showing only approval information is in possession of installer.
 - b. Maintain one set of product data (for each submittal) at Project site, available for reference by ENGINEER and others.

E. Miscellaneous Submittals:

1. Inspection and Test Reports:

- a. Classify each inspection and test report as being either "Shop Drawings" or "Product Data", depending on whether report is specially prepared for Project or standard publication of workmanship control testing at point of production. Process inspection and test reports accordingly.
2. Guarantees, Warranties, Maintenance Agreements, and Workmanship Bonds:
 - a. Refer to Specification sections for specific requirements. Submittal is final when returned by ENGINEER marked "Approved" or "Approved as Noted".
 - b. In addition to copies desired for CONTRACTOR's use, furnish 2 executed copies. Provide 2 additional copies where required for maintenance data.
3. Survey Data:
 - a. Refer to Specification sections for specific requirements on property surveys, building or structure condition surveys, field measurements, quantitative records of actual Work, damage surveys, photographs, and similar data required by Specification sections. Copies will not be returned.
 - (1) Survey Copies: Furnish 2 copies. Provide 5 copies of final property survey (if any).
 - (2) Condition Surveys: Furnish 2 copies.
4. Certifications:
 - a. Refer to Specification sections for specific requirement on submittal of certifications. Submit 6 copies. Certifications are submitted for review of conformance with specified requirements and information. Submittal is final when returned by ENGINEER marked "Approved".

F. General Distribution:

1. Unless required elsewhere, provide distribution of submittals to subcontractors, suppliers, governing authorities, and others as necessary for proper performance of work.

1.5 ACTION ON SUBMITTALS

A. ENGINEER's Action:

1. General:

- a. Except for submittals for record and similar purposes, where action and return on submittals are required or requested, ENGINEER will review each submittal, mark with appropriate action, and return. Where submittal must be held for coordination, ENGINEER will also advise CONTRACTOR without delay.
- b. ENGINEER will stamp each submittal with uniform, self-explanatory action stamp, appropriately marked with submittal action.

B. Action Stamp:

1. Approved:

- a. Final Unrestricted Release: Where submittals are stamped "Approved", Work covered by submittal may proceed PROVIDED IT COMPLIES WITH CONTRACT DOCUMENTS. Acceptance of Work will depend upon that compliance.

2. Approved As Noted:

- a. When submittals are stamped "Approved as Noted", Work covered by submittal may proceed PROVIDED IT COMPLIES WITH BOTH ENGINEER'S NOTATIONS OR CORRECTIONS ON SUBMITTAL AND WITH CONTRACT DOCUMENTS. Acceptance of Work will depend on that compliance. Resubmittal is not required.

3. Revise and Resubmit:

- a. When submittals are stamped "Revise and Resubmit", do not proceed with Work covered by submittal. Do not permit Work covered by submittal 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 Paragraph 1.3.D of this section. Resubmit submittal without delay. Repeat if necessary to obtain different action marking.

4. Acknowledgements of Information Submittals
 - a. When Information Submittals conform to the format requirements in the Contract Documents ENGINEER will acknowledge such submittals via a response transmittal.
 - b. If an Information Submittal does not conform to the format requirements of the Contract Documents, ENGINEER will return the submittal with comments or questions. Do not proceed with Work covered by the submittal and do not permit Work covered by the submittal to be used at Project site or elsewhere where Work is in progress. Resubmit the Information Submittal until the ENGINEER acknowledges that the submittal conforms to the format required.

1.6 REPETITIVE REVIEW

- A. Cost of Subsequent Reviews: Shop Drawings and Operation and Maintenance Manuals submitted for each item will be reviewed no more than twice at the OWNER's expense. All subsequent reviews will be performed at times convenient to the ENGINEER and at the CONTRACTOR's expense based on the ENGINEER's then prevailing rates including all direct and indirect costs and fees. Reimburse the OWNER for all such fees invoiced to the OWNER by the ENGINEER.
- B. Time Extension: Any need for more than one resubmission, or any other delay in ENGINEER's review of submittals, will not entitle CONTRACTOR to extension of the Contract Time.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01450
QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Inspection Services
- B. Quality Control
- C. Costs of Inspection
- D. Acceptance Tests
- E. Failure to Comply with Contract

1.2 RELATED SECTIONS

- A. Section 01330 - Submittals

1.3 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Certificate Submittals: Furnish the ENGINEER authoritative evidence in the form of Certificates of Manufacture that the materials and equipment to be used in the Work have been manufactured and tested in conformity with the Contract Documents. Include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

1.4 INSPECTION SERVICES

- A. OWNER's Access: At all times during the progress of the Work and until the date of final completion, afford the OWNER and ENGINEER every reasonable, safe, and proper facility for inspecting the Work at the site. The observation and inspection of any work will not relieve the CONTRACTOR of any obligations to perform proper and satisfactory work as specified. Replace work rejected due to faulty design, inferior, or defective materials, poor workmanship, improper installation, excessive wear, or nonconformity with the requirements of the Contract Documents, with satisfactory work at no additional cost to the OWNER.

Replace as directed, finished or unfinished work found not to be in strict accordance with the Contract, even though such work may have been previously approved and payment made therefor.

- B. Rejection: The OWNER and the OWNER's Authorized Representatives have the right to reject materials and workmanship which are defective or require correction. Promptly remove rejected work and materials from the site.
- C. Inferior Work Discoveries: Failure or neglect on the part of the OWNER or the OWNER's Authorized Representatives to condemn or reject bad or inferior work or materials does not imply an acceptance of such work or materials. Neither is it to be construed as barring the OWNER or the OWNER's Authorized Representatives at any subsequent time from recovering damages or a sum of money needed to build anew all portions of the Work in which inferior work or improper materials were used.
- D. Removal for Examination: Should it be considered necessary or advisable by the OWNER or the OWNER's Authorized Representatives, at any time before final acceptance of the Work, to make examinations of portions of the Work already completed, by removing or tearing out such portions, promptly furnish all necessary facilities, labor, and material, to make such an examination. If such Work is found to be defective in any respect, defray all expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the cost of examination and restoration of the Work will be considered a change in the Work to be paid for in accordance with applicable provisions of the Contract.
- E. Operation Responsibility: Assume full responsibility for the proper operation of equipment during tests and instruction periods. Make no claim for damage which may occur to equipment prior to the time when the OWNER accepts the Work.
- F. Rejection Prior to Warranty Expiration: If at anytime prior to the expiration of any applicable warranties or guarantees, equipment is rejected by the OWNER, repay to the OWNER all sums of money received for the rejected equipment on progress certificates or otherwise on account of the Contract lump sum prices, and upon the receipt of the sum of money, OWNER will execute and deliver a bill of sale of all its rights, title, and interest in and to the rejected equipment. Do not remove the equipment from the premises of the OWNER until the OWNER obtains from other sources, equipment to take the place of that rejected. The OWNER hereby agrees to obtain other equipment within a reasonable time and the CONTRACTOR agrees that the OWNER may use the equipment furnished by the CONTRACTOR without rental or other charge until the other new equipment is obtained.

1.5 QUALITY CONTROL

A. Testing

1. Field and Laboratory

- a. Engage an independent firm to perform the following periodic observation and associated services.
 - (1) Soils: Observe and test excavations, placement and compaction of soils. Determine suitability of excavated material. Observe subgrade soils and foundations.
 - (2) Concrete: Observe forms and reinforcement; observe concrete placement and facilitate concrete cylinder preparation and prepare test results.
 - b. When specified in Divisions 2 through 16 of the Contract Documents, provide an independent laboratory testing facility to perform required testing. Qualify the laboratory as having performed previous satisfactory work. Prior to use, submit to the ENGINEER for approval.
 - c. Cooperate with the ENGINEER and laboratory testing representatives. Provide at least 24 hours notice prior to when specified testing is required. Provide labor and materials, and necessary facilities at the site as required by the ENGINEER and the testing laboratory.
2. Pipeline and Other Testing: Conform to test procedures and requirements specified in the appropriate Specification Section.

B. Reports

1. Certificate of Compliance: At the option of the ENGINEER, or where not otherwise specified, submit for approval a notarized Certificate of Compliance. The Certificates may be in the form of a letter stating the following:
 - a. Manufacturer has performed all required tests
 - b. Materials to be supplied meet all test requirements
 - c. Tests were performed not more than one year prior to submittal of the certificate

- d. Materials subjected to the tests are of the same quality, manufacture and make as those specified
- e. Identification of the materials

1.6 COSTS OF INSPECTION

- A. CONTRACTOR's Obligation: Include in the Contract Price, the cost of all shop and field tests of materials specifically called for in the Contract Documents. The OWNER may perform tests on any material furnished under this Contract at any time during the Contract. If tests performed by the OWNER result in failure or rejection for noncompliance, reimburse the OWNER for expenditures incurred in making such tests. Tests performed by the OWNER shall prevail in determining compliance with Contract requirements.
- B. Reimbursements to OWNER:
 - 1. Materials submitted by the CONTRACTOR as the equivalent to those specifically named in the Contract Documents may be tested by the OWNER for compliance. Reimburse the OWNER for expenditures incurred in making such tests on materials which are rejected for noncompliance.

1.7 ACCEPTANCE TESTS

- A. Final Field Tests: Upon completion of the Work and prior to final payment, subject all piping and associated system installed under this Contract to specified acceptance tests to demonstrate compliance with the Contract Documents.
 - 1. Furnish all labor, fuel, energy, water and other materials, equipment, instruments and services necessary for all acceptance tests. Conduct field tests in the presence of the ENGINEER.
- B. Failure of Tests: If the acceptance tests reveal defects in material or equipment, or if the material or equipment in any way fails to comply with the requirements of the Contract Documents, then promptly correct such deficiencies. Failure or refusal to correct the deficiencies, or if the improved materials, when tested again, fail to meet the guarantees or specified requirements, the OWNER, notwithstanding its partial payment for work and materials, may reject said Work and materials and may order the CONTRACTOR to remove the defective work from the site at no addition to the Contract Price, and replace it with material which meets the Contract Documents.

1.8 FAILURE TO COMPLY WITH CONTRACT

- A. Unacceptable Materials: If it is ascertained by testing or inspection that the material or equipment does not comply with the Contract Documents, do not deliver said material, or if delivered remove it promptly from the site or from the Work and replace it with acceptable material without additional cost to the OWNER. Fulfill all obligations under the terms and conditions of the Contract even though the OWNER or the OWNER's Authorized Representatives fail to ascertain noncompliance or notify the CONTRACTOR of noncompliance.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General Requirements
- B. Damage Survey and Correction
- C. Temporary Utilities
- D. Temporary Construction
- E. Barricades and Enclosures
- F. Fences
- G. Mailboxes
- H. Security
- I. Temporary Controls
- J. Maintenance of Traffic
- K. Field Offices and Sheds
- L. Engineer's Field Office (OWNER furnished)

1.2 SUBMITTAL REQUIREMENTS

- A. General: Provide all submittals, including the following, as specified in Division 1. In addition to other submittals required under this specification section, specific attention is called to the pedestrian detour specified under Maintenance of Traffic.

1.3 GENERAL REQUIREMENTS

- A. Plant and Facilities: Furnish, install, maintain and remove all false work, scaffolding, ladders, hoistways, braces, pumping plants, shields, trestles, roadways, sheeting, centering forms, barricades, drains, flumes, and the like, any of which may be needed in the construction of any part of the Work and which are not herein described or specified in detail. Accept responsibility for the safety and efficiency of such works and for any damage that may result from their failure or from their improper construction, maintenance or operation.
- B. First Aid: Maintain a readily accessible, completely equipped first aid kit at each location where work is in progress.
- C. Safety Responsibility: Accept sole responsibility for safety and security at the site. Indemnify and hold harmless the OWNER and the OWNER's Authorized Representatives, including Greeley and Hansen, for any safety violation, or noncompliance with governing bodies and their regulations, and for accidents, deaths, injuries, or damage at the site during occupancy or partial occupancy of the site by CONTRACTOR's forces while performing any part of the Work.
- D. Permits: Obtain and pay for any and all permits, approvals and licenses required by all local, state and federal agencies having jurisdiction at no addition to the Contract Price. All work to be performed under these specifications shall conform to the requirements of all local, state and federal agencies having jurisdiction and the requirements of these specifications.
- E. Hazard Communication: Furnish two copies of the CONTRACTOR's Hazard Communication Program required under OSHA regulations before beginning on site activities. Furnish two copies of amendments to Hazard Communications Program as they are prepared.

1.4 DAMAGE SURVEY

- A. Requirements: Conduct a damage survey of the Work site and adjacent properties prior to commencing the Work and before making application for final payment for the Work. Notify OWNER and Resident Project Representative in advance of videotaping so that OWNER and Resident Project Representative may choose to be present. Provide OWNER with two copies of a video cassette recording of all planned construction areas, material storage areas, areas adjacent to these areas, including but not limited to, streets, driveways, sidewalks, curbs, ditches, fencing, railing, visible utilities, retaining structures, landscaping and trees, and adjacent building structures. The purpose of the video is to document existing site conditions and to provide a fair measure of required restoration. Care should be taken to record all existing conditions which exhibit deterioration, imperfections, structural failures, or situations that would be considered substandard. The video

image shall be of sufficient detail to delineate important features and conditions of the project area including public right-of-way and adjacent private property. Submit copies of the videos to the OWNER prior to commencing construction.

Provide videos that are high quality, color and in DVD format. No recording shall be performed during periods of precipitation, mist, fog or when the ground is covered in snow. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolling, or any other form of imperfection. The audio portion of the recording shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity and freedom from distortion.

At the start of production and at the beginning of a new street or easement, an identification summary shall be read into the record while using a wide-angle view of the video to display numeric displays for visual record. This summary shall include: (1) DVD number; (2) project name; (3) job location (intersection / street name, project station numbers); (4) positional location at start of job; (5) date and time; (6) weather; (7) direction of camera; (8) any other notable conditions.

No separate payment will be made for the damage survey, but shall be included in the cost of other Contract Items.

1.5 TEMPORARY UTILITIES

- A. Water: Provide all necessary and required water without additional cost, unless otherwise specified. If necessary, provide and lay water lines to the place of use; secure all necessary permits; pay for all taps to water mains and hydrants and for all water used at the established rates.
- B. Light and Power: Provide without additional cost to the OWNER temporary lighting and power facilities required for the proper construction and inspection of the Work. Maintain temporary lighting and power until the Work is accepted.
- C. Heat: Provide temporary heat, whenever required, for work being performed during cold weather to prevent freezing of concrete, water pipes, and other damage to the Work or existing facilities.
- D. Sanitary Facilities: Provide sufficient sanitary facilities for construction personnel. Prohibit and prevent nuisances on the site of the Work or on adjoining property. Discharge any employee who violates this rule. Abide by all environmental regulations or laws applicable to the Work.

E. Connections to Existing Utilities:

1. Unless otherwise specified or indicated, make all necessary connections to existing facilities including structures, drain lines, and utilities such as water, sewer, gas, telephone, and electricity. In each case, obtain permission from the OWNER or the owning utility prior to undertaking connections. Protect facilities against deleterious substances and damage.
2. Thoroughly plan in advance all connections to existing facilities. Have on hand at the time of undertaking the connections, all material, labor and required equipment. Proceed continuously to complete connections in minimum time. Arrange for the operation of valves or other appurtenances on existing utilities, under the direct supervision of the owning utility.

F. Temporary Removal: All existing utility systems which conflict with the construction of the work herein which can be temporarily removed and replaced shall be accomplished at the expense of the CONTRACTOR. Work shall be done by the utility unless the utility approves in writing that the work may be done by the CONTRACTOR.

G. Permanent Relocation of Utilities: Water mains, storm sewer inlets, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light and traffic standards, cable ways, signals, and other utility appurtenances located in the public right-of-way which would permanently interfere with the proposed improvements will be moved and paid for by the utility involved, except as otherwise provided for in the general requirements.

1. It is understood and agreed that the CONTRACTOR has considered in the bid all of the permanent and temporary utility appurtenances shown or otherwise indicated on the plans in their present positions and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained due to any interference from said utility appurtenances or the operation of moving them either by the utility company or by CONTRACTOR.
2. It shall also be understood that any utilities located in private easements granted by the OWNER or municipality for the specific location of the utilities and utility appurtenances will be moved by the utility involved but shall be paid for by the OWNER as part of the project.

1.6 TEMPORARY CONSTRUCTION

A. Bridges: Design and place suitable temporary bridges where necessary for the maintenance of vehicular and pedestrian traffic. Assume responsibility for the

sufficiency and safety of all such temporary work or bridges and for any damage which may result from their failure or their improper construction, maintenance, or operation. Indemnify and save harmless the OWNER and the OWNER's representatives, including Greeley and Hansen, from all claims, suits or actions, and damages or costs of every description arising by reason of failure to comply with the above provisions.

1.7 BARRICADES AND ENCLOSURES

- A. Protection of Workmen and Public: Effect and maintain at all times during the prosecution of the Work, barriers and lights necessary for the protection of Workmen and the Public. Provide suitable barricades, lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the Work causes obstructions to normal traffic, excavation sites, or constitutes in any way a hazard to the public.
- B. Barricades and Lights:
 - 1. Protect all streets, roads, highways, excavations and other public thoroughfares which are closed to traffic; use effective barricades which display acceptable warning signs. Locate barricades at the nearest public highway or street on each side of the blocked section.
 - 2. Statutory Requirements: Install and maintain all barricades, signs, lights, and other protective devices within highway rights-of-way in strict conformity with applicable statutory requirements by the authority having jurisdiction.

1.8 FENCES

- A. Existing Fences: Obtain written permission from the OWNER prior to relocating or dismantling fences which interfere with construction operations. Reach agreements with the fence owner as to the period the fence may be left relocated or dismantled. Install adequate gates where fencing must be maintained. Keep gates closed and locked at all times when not in use.
- B. Restoration: Restore all fences to their original or better condition and to their original location on completion of the Work. If replacing fence, provide materials that match the existing fence style, type, height and post spacing.

1.9 MAILBOXES

If mailboxes need to be temporarily removed, obtain approval of mailbox owner before relocating any mailbox. Coordinate the removal of the mailboxes with the local post office to insure mail delivery can be continued. The mailboxes shall be

reset as soon as possible following construction in the area. Reinstall mailboxes to preconstruction conditions in accordance with INDOT Standard Specification Section 6.11.

1.10 SECURITY

A. Preservation of Property:

1. Preserve from damage, all property along the line of the Work, in the vicinity of or in any way affected by the Work, the removal or destruction of which is not called for by the Drawings. Preserve from damage, public utilities, trees, lawn areas, building monuments, fences, pipe and underground structures, and public streets. Note: Normal wear and tear of streets resulting from legitimate use by the CONTRACTOR are not considered as damage. Whenever damages occur to such property, immediately restore to its original condition. Costs for such repairs are incidental to the Contract.
2. In case of failure on the part of the CONTRACTOR to restore property or make good on damage or injury, the OWNER may, upon 24 hours written notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any moneys due or which may become due the CONTRACTOR under this Contract. If removal, repair or replacement of public or private property is made necessary by alteration of grade or alignment authorized by the OWNER and not contemplated by the Contract Documents, the CONTRACTOR will be compensated, in accordance with the General Conditions, provided that such property has not been damaged through fault of the CONTRACTOR or the CONTRACTOR's employees.

B. Public Utility Installations and Structures:

1. Public utility installations and structures include all poles, tracks, pipes, wires, conduits, vaults, manholes, and other appurtenances and facilities, whether owned or controlled by public bodies or privately owned individuals, firms or corporations, used to serve the public with transportation, gas, electricity, telephone, storm and sanitary sewers, water, or other public or private utility services. Facilities appurtenant to public or private property which may be affected by the Work are deemed included hereunder.
2. The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. Existing public utility installations and structures are indicated on the Drawings only to the extent such information was made available to, or found by, the

ENGINEER in preparing the Drawings. These data are not guaranteed for completeness or accuracy, and the CONTRACTOR is responsible for making necessary investigations to become fully informed as to the character, condition, and extent of all public utility installations and structures that may be encountered and that may affect the construction operations.

3. Contact utility locating service sufficiently in advance of the start of construction to avoid damage to the utilities and delays to the completion date.
 4. Remove, replace, relocate, repair, rebuild, and secure any public utility installations and structures damaged as a direct or indirect result of the Work under this Contract. Costs for such work are incidental to the Contract. Be responsible and liable for any consequential damages done to or suffered by any public utility installations or structures. Assume and accept responsibility for any injury, damage, or loss which may result from or be consequent to interference with, or interruption or discontinuance of, any public utility service.
 5. Repair or replace any water, sanitary, storm, gas, electric, telecommunications or other service connection damaged during the Work with no addition to the Contract price.
 6. At all times in performance of the Work, employ proven methods and exercise reasonable care and skill to avoid unnecessary delay, injury, damage, or destruction to public utility installations and structures. Avoid unnecessary interference with, or interruption of, public utility services. Cooperate fully with the owners thereof to that end.
 7. Give written notice to the owners of all public utility installations and structures affected by proposed construction operations, sufficiently in advance of breaking ground in any area or on any unit of the Work, to obtain their permission before disrupting the lines and to allow them to take measures necessary to protect their interests. Advise the Chiefs of Police, Fire and Rescue Services of any excavation in public streets or the temporary shut-off of any water main. Provide at least 24 hours notice to all affected property owners whenever service connections are taken out of service.
- C. Work on Private Property: Work on this project will require operations on private property, rights of way or easements. The OWNER has secured the appropriate easements or rights of entry from the affected property owners. Comply with all easement or rights of entry provisions.

Conduct operations along rights-of-way and easements through private property to avoid damage to the property and to minimize interference with its ordinary use. Upon completion of the Work through such property, restore the surface and all fences or other structures disturbed by the construction to the preconstruction conditions. Do not remove any material from private property without the consent of the property owner or responsible party in charge of such property. Save the OWNER harmless from any claim or damage arising out of or in connection with the performance of work across and through private property.

- D. Miscellaneous Structures: Assume and accept responsibility for all injuries or damage to culverts, building foundations and walls, retaining walls, or other structures of any kind met with during the prosecution of the Work. Assume and accept liability for damages to public or private property resulting therefrom. Adequately protect against freezing all pipes carrying liquid.
- E. Protection of Trees and Lawn Areas:
 - 1. Protect with boxes, trees and shrubs, except those ordered to be removed. Do not place excavated material so as to cause injury to such trees or shrubs. Replace trees or shrubs destroyed by accident or negligence of the CONTRACTOR or CONTRACTOR's employees with new stock of similar size and age, at the proper season, at no additional cost to the OWNER.
 - 2. Leave lawn areas in as good condition as before the start of the Work.

1.11 TEMPORARY CONTROLS

- A. During Construction:
 - 1. Keep the site of the Work and adjacent premises free from construction materials, debris, and rubbish. Remove this material from any portion of the site if such material, debris, or rubbish constitutes a nuisance or is objectionable.
 - 2. Remove from the site all surplus materials and temporary structures when they are no longer needed.
 - 3. Neatly stack construction materials such as concrete forms and scaffolding when not in use. Promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.
 - 4. Properly store volatile wastes in covered metal containers and remove from the site daily.

5. Do not bury or burn on the site or dispose of into storm drains, sanitary sewers, streams, or waterways, any waste material. Remove all wastes from the site and dispose of in a manner complying with applicable ordinances and laws.
- B. Smoke Prevention:
1. Strictly observe all air pollution control regulations.
 2. Open fires will be allowed only if permitted under current ordinances.
- C. Noises:
1. Maintain acceptable noise levels in the vicinity of the Work. Limit noise production to acceptable levels by using special mufflers, barriers, enclosures, equipment positioning, and other approved methods.
 2. Supply written notification to the OWNER sufficiently in advance of the start of any work which violates this provision. Proceed only when all applicable authorizations and variances have been obtained in writing.
- D. Hours of Operation:
1. Operate construction equipment between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. OWNER may give written permission to operate construction equipment outside these hours of operation if justified to facilitate short duration construction activities such as connections or at specific locations where public inconvenience can be reduced.
 2. Do not carry out nonemergency work, including equipment moves, on Sundays without prior written authorization by the OWNER.
- E. Dust Control:
1. Take measures to prevent unnecessary dust. Keep earth surfaces exposed to dusting moist with water or a chemical dust suppressant. Cover materials in piles or while in transit to prevent blowing or spreading dust.
 2. Adequately protect buildings or operating facilities which may be affected adversely by dust. Protect machinery, motors, instrument panels, or similar equipment by suitable dust screens. Include proper ventilation with dust screens.

- F. Temporary Drainage Provisions:
1. Provide for the drainage of stormwater and any water applied or discharged on the site in performance of the Work. Provide adequate drainage facilities to prevent damage to the Work, the site, and adjacent property.
 2. Supplement existing drainage channels and conduits as necessary to carry all increased runoff from construction operations. Construct dikes as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect the OWNER's facilities and the Work, and to direct water to drainage channels or conduits. Provide ponding as necessary to prevent downstream flooding.
 3. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- G. Erosion Control: Provide erosion control in accordance with Section 02370 – Slope Protection and Erosion Control.
- H. Pollution: Prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. Do not permit sanitary wastes to enter any drain or watercourse other than sanitary sewers. Do not permit sediment, debris, or other substances to enter sanitary sewers. Take reasonable measures to prevent such materials from entering any drain or watercourse.

1.12 MAINTENANCE OF TRAFFIC

- A. Traffic Facilities And Traffic Control – General:
1. The road shall be kept open to all traffic while undergoing improvements. Maintenance of traffic shall be in accordance with the details as shown on the plans or as specified. Before starting any Work on the Project, submit in writing to OWNER, a detailed plan for maintaining traffic on all streets and highways and pedestrian detour affected by this Project.
 2. The portion of the roadway being used by public traffic shall be kept in such condition that traffic will be adequately accommodated. Temporary approaches to businesses, parking lots, residences, garages, farms, crossings, intersections with trails, roads and streets shall be provided in a safe condition. All traffic control devices shall be maintained at no additional cost to OWNER.
 3. Prosecute the Work in such a manner that property owners and businesses will experience minimal access disruption. Maintain access to residential

drives at all times where possible. At least one access must be maintained at all commercial businesses. For those drive approaches to be closed for their construction, submit notification to the business or property owner 72 hours prior to such closings. The approaches at businesses with only one access point shall be constructed one-half at a time so that traffic can be maintained at all times. If construction of an approach one-half at a time does not provide the required access, then other provisions or temporary access by other means shall be provided to the property owner or business.

4. Regulatory controls shall not be changed without prior approval. Regulatory control devices may be relocated in order to permit necessary construction, providing these control devices remain effective and convey the intended meaning after relocation to a position which complies with the requirements of the Manual of Uniform Traffic Control Devices (MUTCD). After completion of the construction, regulatory control devices which were relocated to facilitate construction shall be permanently installed with no additional payment, in accordance with the plans, or as otherwise directed. Any traffic control devices damaged, while being moved or handled, shall be replaced with no additional payment. All other traffic control devices necessary to maintain safe traffic operations and routings shall not be removed, changed, or relocated, except as authorized. Traffic control devices removed without authorization shall be replaced with no additional payment.
5. Obtain all permits required for work within public right of way, including the closure of traffic lanes, from the OWNER where applicable.
6. Construct and maintain all temporary walks, roads, bridges, culverts, and traffic control devices to facilitate vehicular and pedestrian traffic as required for the project.
7. During the progress of the Work, make ample provision for both vehicular and foot traffic on any public road and indemnify and hold harmless OWNER from any expense whatsoever due to his operations over said roadways. Organize and conduct work such that traffic can be properly maintained.
8. Provide and maintain safeguards, safety devices, and protective equipment and take any other needed actions that may be necessary to protect the public and property in connection with the Work. Restore all original pavement markings, signs, and traffic control devices.

B. Local Traffic:

1. For local traffic, provide and maintain in a safe condition, including snow and ice removal, such drives, temporary roadways, bypasses, sidewalks, or temporary structures as may be necessary to provide vehicular and pedestrian

ingress and egress for the residents and facilities adjacent to the improvements. Temporary approaches and crossings of intersecting highways shall also be provided and maintained in a safe condition.

2. Provide free access to all municipal, commercial and residential entrances, fire hydrants and water and gas valves located along the line of work. Install and maintain temporary driveways, bridges, and trench crossings which in the opinion of ENGINEER are necessary to maintain access to residences and businesses and to reasonably accommodate the public at no additional cost to OWNER.

C. Through Traffic:

1. When the street affected by Project construction is being used by through traffic including periods of suspension of the Work, maintain by the use of labor, equipment, and materials that portion of the street being used, such that it is smooth, free from holes, ruts, ridges, bumps, and dust. The street being used shall be provided with the necessary outlets to drain freely. Pipe trenches or other openings left in hard surface pavements shall be maintained with material as specified.
2. The proper authorities shall have the right to enter upon that portion of the Work where CONTRACTOR is responsible for maintaining traffic to remove snow and ice and place abrasives at their own expense, as necessary. Be responsible for the removal of abrasives placed, for which no claim for additional compensation shall be allowed nor be relieved in any way of CONTRACTOR'S obligation for maintenance of traffic.
3. Provide and maintain temporary bridges and trench crossings such as in the opinion of ENGINEER and OWNER are necessary to accommodate through traffic and the general public. Temporary bridges and trench crossings shall be designed, signed, and sealed by a licensed professional engineer registered in the State of Indiana.

D. Traffic Control:

1. Conform installation, maintenance, and operation of all traffic controls and traffic control devices to the requirements of the INDOT Standard Specifications. Provide traffic control devices with suitable supports of sufficient strength and stability.
2. Faces of construction signs, barricades, vertical panels and drum banks shall be suitably reflectorized using sheeting complying with the requirements of the INDOT Standard Specification Section 801.04.

3. Provide traffic cones of a highly visible orange color. Provide temporary pavement markings conforming to the INDOT Standard Specification Section 801.12 unless otherwise specified.
4. Barricades and channelizing devices such as cones, vertical panels, hazard markers, and drums shall be highly visible. They shall also be protected by adequate advance warning devices and by suitable lighting or reflectorization at night (between the hours of sunset to sunrise). Detour signs, traffic control signs, barricades, construction lighting, etc. shall be replaced whenever damaged, stolen or vandalized.
5. Equipment and material stored within road right-of-way shall be marked at all times. At night any such material or equipment stored between the side ditches, or between lines 5 feet behind any raised curbs, shall be clearly outlined with dependable lighted devices. In addition, provide any other lights, barricades, etc., that may be needed for the protection of pedestrian traffic.

E. Traffic Maintained:

1. Maintain two-way traffic flow on all roadways within the construction limits at all times.
2. For a lane shift, traffic control devices may remain in place 24 hours. The lane shift will use the two-way left-turn lane as the inside southbound travel lane. Provide three (3) rows of barrels to delineate two channels for shifted southbound traffic. Post advisory "Speed Limit 30 MPH" signs during all times of traffic control.
3. Traffic Control for Long-Term Shoulder Closure: At locations determined by CONTRACTOR where work is necessary beyond 10 feet of the edge of the through lane of a roadway, provide and maintain traffic control devices upstream and downstream of the work along the shoulder of the roadway, in accordance with the latest edition of the INDOT Work Zone Safety Manual.
4. Traffic Control for Long-Term Lane Closure: At locations determined by CONTRACTOR where work is necessary within 10 feet from the edge of the through lane of a roadway, provide and maintain traffic control devices upstream and downstream of the work along the lane of the roadway, in accordance with the latest edition of the INDOT Work Zone Safety Manual.
5. Maintaining Traffic – Prosecution and Progress: Access and traffic to all businesses, residences, for all postal deliveries and all emergency traffic such as police, fire, medical, etc. within the project limits, shall be maintained at all times.

- a. The names and telephone numbers of CONTRACTOR's superintendent and two other responsible employees shall be furnished at the pre-construction conference.
 - b. These employees shall be on call and available at nights, weekends, or during other non-working periods to repair or replace all traffic control devices which may become damaged or inoperative.
 - c. Should CONTRACTOR propose a street closure not otherwise identified within the Contract Documents, submit a written request to OWNER for review and approval at least 3 weeks prior to the planned closure.
 - d. Pedestrian traffic shall also be maintained with disruptions kept to a minimum. Provide signage "Sidewalk Closed Ahead" at closest signal light at both ends of project site.
 - e. Any trenching areas adjacent to a sidewalk shall be barricaded. If adequate sidewalk area is not available, divert pedestrian traffic across the street and shall provide all materials necessary to provide for the crossover.
 - f. Trenching in the streets shall not be left open during off-working hours. The trenches shall be either backfilled with crushed stone or steel plated per current OWNER's ordinances or regulations.
 - g. Coordinate all construction activities with the City of West Lafayette Streets, Sanitation and Recycling Department for trash collection. Contact Dave Downey, Streets Commissioner, at 765-775-5242. If CONTRACTOR's activities restrict access to any trash container scheduled for pickup by OWNER, be responsible for relocating the trash container(s) to an alternate location acceptable to the OWNER.
6. Where a street affected by Project construction is being used by through traffic, including periods of suspension of the Work, furnish and maintain pavement markings, lights, warning signs, road construction - traffic maintained signs and end construction signs, barricades, temporary guardrail, and such other traffic control devices, and watchmen and flaggers as may be necessary to maintain safe traffic conditions within the work limits.
 7. Furnish and erect regulatory signs and guide signs within the work limits on all traffic maintained projects. The responsibility for maintenance of these signs shall rest with CONTRACTOR. The erection and removal of all regulatory signs shall be approved by ENGINEER.
 8. Existing signs and traffic control devices within the work limits shall remain in use during the construction period. If there is need to relocate or modify

existing signs or traffic control devices as a consequence of work sequence, provide suitable supports and modify the devices after receiving prior approval from OWNER and the maintaining agency. Routine maintenance of existing traffic control devices will remain the responsibility of the maintaining agency. The function of existing Stop or Yield signs shall be retained at all times although their position may be adjusted. Existing signs that must be relocated laterally shall be placed in accordance with the INDOT Standard Specifications. Restore all relocated or modified signs to the position and condition which existed prior to construction.

9. When an existing signal operation must be interrupted for a period, provide a temporary traffic control method approved by OWNER and the authority maintaining the signal at no additional cost to OWNER.
10. Whenever it is necessary to divert the flow of traffic from its normal channel into another channel, the channel for such diverted traffic shall be clearly marked with cones, drums, barricades, vertical panels, pavement markings, or flashing arrow panels. This method of marking shall also be used where work is being done adjacent to the part of the street or highway in use by the public or where work is being done on the shoulder where the roadway is being used by the public. During darkness hours, barricades and drums shall be supplemented with yellow flashing or steady burning electric warning lights in accordance with the INDOT Standard Specifications.
12. CONTRACTOR shall obtain the approval of OWNER and the proper authorities before closing a traffic lane or establishing a one-way traffic operation.

F. Pavement Marking Operations:

1. Perform moving marking operations by a truck equipped with necessary flashers and warning signs and protect by a similarly equipped trailing vehicle or vehicles separated a sufficient distance to provide adequate advance warning to overtaking traffic. The marking operation should use the extreme left or right lane when possible. Where 3 or more lanes exist, the operation shall allow traffic to pass on one side only.
2. Protect stationary marking operations in intersections, school zones, and other areas with traffic control devices such as advance warning signs and cones.
3. Lane striping shall be in accordance with all applicable standards of INDOT Standard Specification Section 808.
4. Temporary striping necessary for the maintenance of traffic shall be placed. The temporary striping shall comply with Section 801.13. Yellow striping

shall be placed on the center line and white striping on the lane dividing lines. The temporary striping shall be placed on both intermediate and surface courses and may be painted on cold planed areas. Temporary striping will be in place prior to opening the roadway to traffic. The striping tape shall be Temporary Pavement Marking Type II. Temporary striping shall be placed to the original/existing condition.

H. General Maintenance of Traffic:

1. A minimum of one lane for emergency vehicles is to be provided at all times on all streets affected by this project.
2. All trenches and openings shall be backfilled as soon as possible or as specified, and the pavement restored.
3. Confer with OWNER, local property owners, and others who may be affected by the Project before starting any work at locations affecting said parties, and the carrying out of this work with respect to traffic maintenance shall be covered by agreements reached at such conferences.
4. The location, design, and construction of driveways, roads, and access and egress points for construction equipment vehicles to public streets which may be required by CONTRACTOR for construction on easements and other locations shall be approved by ENGINEER. All such points shall be provided with adequate warning signs.
5. No parking or standing of vehicles on streets will be permitted.
6. No parking within private business parking lots will be permitted.

1.13 FIELD OFFICES AND SHEDS

- A. CONTRACTOR's Office: Have an authorized supervisor under the direct employ of the General Contractor (i.e. foreman, superintendent, or manager) present in the field at all times while the Work is in progress. Keep readily accessible copies of the Contract Documents, required record documents, and the latest approved shop drawings at the site at all times.
- B. Material Sheds and Temporary Structures: Provide material sheds and other temporary structures of sturdy construction and neat appearance.
- C. Location: Coordinate location of material sheds and temporary structures with ENGINEER and OWNER.

1.14 ENGINEER'S FIELD OFFICE

- A. General: Provide space for OWNER furnished ENGINEER's field office trailer, together with all foundations, steps, landings, handrails, utilities and all other appurtenances required for a complete and functional installation. Maintain the ENGINEER's trailer at the project site for the duration of the construction project including mowing grass, maintenance of access drives, maintaining walks, steps and landings free of mud, snow, ice and water. Coordinate the location of the ENGINEER's trailer with the OWNER. Make field office trailer available for occupancy by the ENGINEER no later than the first day that the CONTRACTOR is on site to begin construction activities. OWNER furnished field office trailer is approximately 36-feet in length by 12-feet in width, manufacturer's ID #R015945 by Tyson Corporation.

Provide one bottled water cooler with hot and cold taps and refrigerated storage compartment of approximately one cubic foot capacity. Provide one small refrigerator with freezer. Provide ten gallons of bottled water per week. Provide one fully-equipped standard first-aid cabinet.

Contractor is responsible for disconnecting and reconnecting all electrical and plumbing connections servicing the trailer as well as relocating the trailer to the project site from Fire Station #3, 1100 Kalberer Road West Lafayette, IN.

Have the field office suitably blocked or otherwise installed in accordance with local ordinances.

- B. Utility Connections and Janitorial Service:

Connect the water, sanitary sewer, power, and internet connection to existing lines. Pay all connection fees, monthly usage fees and all other fees until Final Completion. Maintain service until Final Completion.

Janitorial services include: cleaning sinks, countertop and lavatory, trash removal, sweeping and mopping floor and dusting. Replace air filter in heating/ventilating unit once per month. Provide a stock of paper towels and toilet paper throughout the construction period.

Arrange with the local internet service provider to provide cable modem service or wireless 4G internet to the Engineer's field office. Pay each monthly internet service charge.

- C. Final Ownership: Provide labor and equipment to relocate the field office trailer to the City of West Lafayette Wastewater Treatment Plant at 500 South River Road at the end of construction. Restore site to its original condition or better.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description
- B. Substitutions
- C. Manufacturer's Written Instructions
- D. Transportation and Handling
- E. Storage, Protection and Maintenance

1.2 DESCRIPTION

- A. Proposed Manufacturers List: Within 15 calendar days of the date of the Notice to Proceed, submit to the ENGINEER a list of the names of proposed manufacturers, materialmen, suppliers and subcontractors, obtain approval of this list by OWNER prior to submission of any working drawings. Upon request submit evidence to ENGINEER that each proposed manufacturer has manufactured a similar product to the one specified and that it has previously been used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.
- B. Furnish and install Material and Equipment which meets the following:
 - 1. Conforms to applicable specifications and standards.
 - 2. Complies with size, make, type, and quality specified or as specifically approved, in writing, by ENGINEER.
 - 3. Will fit into the space provided with sufficient room for operation and maintenance access and for properly connecting piping, as applicable. Make all provisions for installing equipment in accordance with manufacturer's requirements at no increase in Contract Price.
 - 4. Manufactured and fabricated in accordance with the following:
 - a. Design, fabricate, and assemble in accordance with best engineering and shop practices.

- b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Provide two or more items of same kind identical, by same manufacturer.
 - d. Provide materials and equipment suitable for service conditions.
 - e. Adhere to equipment capabilities, sizes, and dimensions shown or specified unless variations are specifically approved, in writing, in accordance with the Contract Documents.
5. Use material or equipment only for the purpose for which it is designed or specified.

1.3 SUBSTITUTIONS

A. Substitutions:

1. CONTRACTOR'S requests for changes in equipment and materials from those required by the Contract Documents are considered requests for substitutions and are subject to CONTRACTOR'S representations and review provisions of the Contract Documents when one of following conditions are satisfied:
 - a. Where request is directly related to an "or equal" clause or other language of same effect in Specifications.
 - b. Where required equipment or material cannot be provided within Contract Time, but not as result of CONTRACTOR'S failure to pursue Work promptly or to coordinate various activities properly.
 - c. Where required equipment or material cannot be provided in manner compatible with other materials of Work, or cannot be properly coordinated therewith.
2. CONTRACTOR'S Options:
 - a. Where more than one choice is available as options for CONTRACTOR'S selection of equipment or material, select option compatible with other equipment and materials already selected (which may have been from among options for other equipment and materials).
 - b. Where compliance with specified standard, code or regulation is required, select from among products that comply with requirements of those standards, codes, and regulations.
 - c. "Or Equal": For equipment or materials specified by naming one or more equipment manufacturer and "or equal", submit request for substitution for any equipment or manufacturer not specifically named.

B. Conditions Which are Not Substitution:

1. Requirements for substitutions do not apply to CONTRACTOR options on materials and equipment provided for in the Specifications.
2. Revisions to Contract Documents, where requested by OWNER or ENGINEER, are "changes" not "substitutions".
3. CONTRACTOR'S determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions and do not constitute basis for a Change Order, except as provided for in Contract Documents.

1.4 MANUFACTURER'S WRITTEN INSTRUCTIONS

- A. Instruction Distribution: When the Contract Documents require that installation, storage, maintenance and handling of equipment and materials comply with manufacturer's written instructions, obtain and distribute printed copies of such instructions to parties involved in installation, including four copies to ENGINEER.
1. Maintain one set of complete instructions at jobsite during storage and installation, and until completion of work.
- B. Manufacturer's Requirements: Store, maintain, handle, install, connect, clean, condition, and adjust products in accordance with manufacturer's written instructions and in conformity with Specifications.
1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult ENGINEER for further instructions.
 2. Do not proceed with work without written instructions.
- C. Performance Procedures: Perform work in accordance with manufacturer's written instructions. Do not omit preparatory steps or installation procedures, unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

- A. Coordination with Schedule: Arrange deliveries of materials and equipment in accordance with Construction Progress Schedules. Coordinate to avoid conflict with work and conditions at site.
1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 2. Immediately upon delivery, inspect shipments to determine compliance with requirements of Contract Documents and approved submittals and that material and equipment are protected and undamaged.

- B. Handling: Provide equipment and personnel to handle material and equipment by methods recommended by manufacturer to prevent soiling or damage to materials and equipment or packaging.

1.6 STORAGE, PROTECTION, AND MAINTENANCE

A. On-site storage areas:

1. Coordinate location of storage areas with ENGINEER and OWNER.
2. Arrange on site storage areas for proper protection and segregation of stored materials and equipment with proper drainage. Provide for safe travel around storage areas and safe access to stored materials and equipment.
3. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
4. Store materials such as pipe and equipment on pallets, blocks or racks, off ground.
5. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

- B. OWNER'S Responsibility: OWNER assumes no responsibility for materials or equipment stored in buildings or on-site. CONTRACTOR assumes full responsibility for damage due to storage of materials or equipment.

- C. CONTRACTOR'S Responsibility: CONTRACTOR assumes full responsibility for protection of completed construction. Repair and restore damage to completed Work equal to its original condition.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01722
LINES AND GRADES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General
- B. Surveys
- C. Datum Plane
- D. Protection of Survey Data

1.2 GENERAL

- A. Construct all work in accordance with the lines and grades shown on the Drawings. Assume full responsibility for keeping all alignment and grade.

1.3 SURVEYS

- A. Control Points: Base horizontal and vertical control points will be established or designated by the ENGINEER and used as datum for the Work. Perform all additional survey, layout, and measurement work.
 - 1. Keep ENGINEER informed, sufficiently in advance, of the times and places at which work is to be performed so that base horizontal and vertical control points may be established and any checking deemed necessary by ENGINEER may be done, with minimum inconvenience to the ENGINEER and at no delay to CONTRACTOR. It is the intention not to impede the Work for the establishment of control points and the checking of lines and grades set by the CONTRACTOR. However, when necessary, suspend working operations for such reasonable time as the ENGINEER may require for this purpose. Costs associated with such suspension are deemed to be included in the Contract Price, and no time extension or additional costs will be allowed.
 - 2. Provide an experienced survey crew including an instrument operator, competent assistants, and any instruments, tools, stakes, and other materials required to complete the survey, layout, and measurement of work performed by the CONTRACTOR.

1.4 DATUM PLANE

- A. Coordinates are North American Datum, 1983 State Plane Coordinates (Indiana West Zone). Elevations shown on the drawings or specified refer to the North American Vertical Datum, 1988 and are expressed in feet and decimal parts thereof, or in feet and inches.

Butler, Fairman & Seufert, Lafayette, Indiana provided the horizontal and vertical control used to prepare the Contract Documents.

1.5 PROTECTION OF SURVEY DATA

- A. General: Safeguard all points, stakes, grade marks, known property corners, monuments, and benchmarks made or established for the Work. Reestablish them if disturbed, and bear the entire expense of checking reestablished marks and rectifying work improperly installed.
- B. Records: Keep neat and legible notes of measurements and calculations made in connection with the layout of the Work. Furnish copies of such data to the ENGINEER for use in checking the CONTRACTOR's layout. Data considered of value to the OWNER will be transmitted to the OWNER by the ENGINEER with other records on completion of the Work.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01732

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General Requirements
- B. Scheduling of Shutdown

1.2 RELATED SECTIONS

- A. Section 01110 - Summary of Work

1.3 GENERAL REQUIREMENTS

- A. Coordination: Perform all cutting, fitting or patching of the Work that may be required to make the several parts thereof join in accordance with the Contract Documents. Perform restoration with competent workmen skilled in the trade.
- B. Improperly Timed Work: Perform all cutting and patching required to install improperly timed work, to remove samples of installed materials for testing, and to provide for alteration of existing facilities or for the installation of new Work in the existing construction.
- C. Limitations: Except when the cutting or removal of existing construction is specified or indicated, do not undertake any cutting or demolition that may affect the structural stability of the Work or existing facilities without the ENGINEER's concurrence.

1.4 SCHEDULING OF SHUTDOWN

- A. Connections to Existing Facilities: If any connections, replacement, or other work requiring the shutdown of an existing facility is necessary, schedule such work at times when the impact on the OWNER's normal operation is minimal. Overtime, night and weekend work without additional compensation from the OWNER, may be required to make these connections, especially if the connections are made at times other than those specified.
- B. Request for Shutdowns: Submit a written request for each shutdown to the OWNER and the ENGINEER sufficiently in advance of any required shutdown.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

- A. Safeguards: Provide all shoring, bracing, supports, and protective devices necessary to safeguard all work and existing facilities during cutting and patching operations.
- B. Material Removal: Cut and remove all materials to the extent shown or as required to complete the Work. Remove materials in a careful manner with no damage to adjacent facilities. Remove materials that are not salvageable from the site.

3.2 RESTORATION

- A. Final Appearance and Finish: Restore all work and existing facilities affected by cutting operations, with new materials, or with salvaged materials acceptable to the ENGINEER, to obtain a finished installation with the strength, appearance, and functional capacity required. If necessary, patch and refinish entire surfaces.

END OF SECTION

SECTION 01789

CONTRACT CLOSE OUT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Warranties and Bonds
- B. Record Drawings

1.2 WARRANTIES AND BONDS

Prior to final payment deliver to the OWNER the original and one copy of all bonds, warranties, guarantees and similar documents, including those customarily provided by manufacturers and suppliers which cover a period greater than the one year correction period. Show OWNER as beneficiary of these documents.

1.3 RECORD DRAWINGS

At the site keep and maintain one record copy of all Contract Documents, reference documents and all technical documents submitted in good order. Annotate Contract Drawings to show all changes made during the construction period. Annotated drawings are to be made available to ENGINEER for reference at all times.

Provide location of all underground pipelines, if different than original drawing. All record drawings will be marked with the proper XYZ (northing, easting, elevation) information for each structure. Also indicate location and depth of buried utilities that over or undercross sanitary sewer. Use a Registered Land Surveyor registered in the State of Indiana to produce record drawing information.

At completion of the CONTRACT and before final payment is made, deliver to the ENGINEER one hard copy set and one digital set of clearly readable, reproducible Contract Drawings reflecting all changes made during construction. Mark each drawing "Record Drawing" in ink.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 02230

SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for clearing of all areas within the limits of construction and other areas shown, including Work designated in permits and other agreements, in accordance with the requirements of Division 1.
- B. Related Work Specified in Other Sections Includes:
 - 1. Section 02316 - Earth Excavation
 - 2. Section 02317 - Backfilling
 - 3. Section 02900 - Landscaping Work

1.2 DEFINITIONS

- A. Clearing: Clearing is the removal from the ground surface and disposal, within the designated areas, of trees, brush, shrubs, down timber, decayed wood, other vegetation, rubbish and debris as well as the removal of fences.
- B. Grubbing: Grubbing is the removal and disposal of all stumps, buried logs, roots larger than 2 inches, matted roots and organic materials.

PART 2 MATERIALS

Not Used

PART 3 EXECUTION

3.1 TREE AND SHRUB REMOVAL

- A. Tree and Shrub Removal Within Construction Limits: Remove trees and shrubs within the limits of construction as required to facilitate construction of the Work unless otherwise indicated.
 - 1. Grub and remove tree stumps and shrubs felled within the limits of construction to an authorized disposal site. Fill depressions created by such removal with material suitable for backfill as specified in Section 02317.

2. Provide one tree as replacement for every tree damaged or removed within the limits of construction. Provide 1-1/2 –inch minimum caliper tree of the same species of tree damaged or removed, or from the list of acceptable tree species listed in Section 02900, subject to Owner approval. Provide one shrub as replacement for every shrub damaged or removed within the limits of construction.
- B. Tree and Shrub Removal Outside Construction Limits: Do not cut or damage trees and shrubs outside the limits of construction unless shown to be removed or unless written permission has been obtained from the property owner. Furnish three copies of the written permission before removal operations commence.
- C. Warranty Period for Tree Replacement: Apply the one-year warranty to all planted areas or replacement trees (damaged outside the limits of construction). Have the warranty period commence after the final acceptance of all landscaping work exclusive of all replacement plant materials.
1. Maintain all planted areas during the warranty period.
 2. Replacement: Plant trees only during the specified planting seasons and warranty the replacement material for the same period of time as the original material.

3.2 CLEARING AND GRUBBING

- A. Clearing: Clear all items as required to construct the Work, and remove cleared and grubbed materials from the site.
1. Do not start earthwork operations in areas where clearing and grubbing is not complete, except that stumps and large roots may be removed concurrent with excavation.
 2. Comply with erosion, sediment control and storm management measures as specified in Division 1.
- B. Grubbing: Clear and grub areas to be excavated, areas receiving less than 3 feet of fill and areas upon which structures are to be constructed.
1. Remove stumps and root mats in these areas to a depth of not less than 1 foot below the subgrade of sloped surfaces.
 2. Fill all depressions made by the removal of stumps or roots with material suitable for backfill as specified in Section 02317.
- C. Limited Clearing: Clear areas receiving more than 3 feet of fill by cutting trees and shrubs as close as practical to the existing ground. Grubbing will not be required.
- D. Burning: Burning will not be allowed.

3.3 TOPSOIL

- A. Stripping: Strip existing topsoil from areas that will be excavated or graded prior to commencement of excavating or grading and place in well-drained stockpiles in approved locations.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 02251

SHORING, SHEETING AND BRACING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Work required for protection of an excavation or structure through shoring, sheeting, and bracing.
- B. Related Work Specified In Other Sections Includes:
 - 1. Section 02316 - Earth Excavation
 - 2. Section 02317 - Backfilling

1.2 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. CONTRACTOR's Submittals: Submit a CERTIFICATE (ONLY), signed and sealed by a Licensed Structural/Professional Engineer qualified to perform structural engineering of this nature and registered in the State of Indiana, that certifies that the Licensed Structural/Professional Engineer has evaluated and approved the CONTRACTOR's excavation plan and has prepared complete design calculations and working drawings for the shoring, sheeting and bracing, not specifically shown on the Contract Drawings, which will be used for excavation support. Provide a separate CERTIFICATION, identifying the applicable excavation, for each excavation before starting the excavation. Where commercially manufactured trench boxes are to be used, provide a CERTIFICATION from the CONTRACTOR's Licensed Structural/Professional Engineer stating the conditions under which the trench boxes will be used.

1.3 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. All Federal, State and local laws and regulations applying to the design and construction of shoring, sheeting and bracing.

2. National Bureau of Standards Building Science Series 127 “Recommended Technical Provisions for Construction Practice in Shoring and Sloping Trenches and Excavations.”

PART 2 PRODUCTS

2.1 MANUFACTURERS AND MATERIALS

- A. Use manufacturers and materials for shoring, sheeting and bracing as recommended by the CONTRACTOR’s Licensed Structural/Professional Engineer who designed the shoring, sheeting, and bracing. Where wood lagging is to be left in place use oak, treated fir or treated pine. Use only environmentally safe treatment for wood lagging.

PART 3 EXECUTION

3.1 SHORING, SHEETING AND BRACING INSTALLATION

- A. General: Provide safe working conditions, prevent shifting of material, prevent damage to structures or other work, and avoid delay to the work, all in accordance with applicable laws and regulations. Properly shore, sheet, and brace all excavations that are not cut back to the proper slope, as determined by the CONTRACTOR’s Licensed Structural/Professional Engineer.
 1. Take sole responsibility for the design and adequacy of shoring, sheeting and bracing not shown on the Contract Drawings.
 2. Take sole responsibility for the methods of installation of the shoring, sheeting and bracing.
- B. Arrange shoring, sheeting and bracing so as not to place any strain on portions of completed work until the general construction has proceeded far enough to provide ample strength.
- C. If the CONTRACTOR or its Licensed Structural/Professional Engineer is of the opinion that at any time the CONTRACTOR’s excavation plan, shoring, sheeting or bracing is inadequate or unsuited for the purpose, take immediate and appropriate action. Provide a new CERTIFICATE if the CONTRACTOR’s excavation plans, shoring, sheeting or bracing require modifications.
- D. Monitoring: Periodically monitor horizontal and vertical deflections of sheeting, shoring and bracing.

- E. Accurately locate all underground utilities and take the required measures necessary to protect them from damage. All underground utilities shall be kept in service at all times as specified in Division 1.
- F. Remove shoring, sheeting and bracing as the excavation is refilled in a manner to avoid the caving in of the bank or disturbance to adjacent areas or structures or pipe bedding.
 - 1. Carefully fill voids left by the withdrawal of the shore, sheeting and bracing. No separate payment will be made for the filling of such voids.
 - 2. If pipe bedding is disturbed, re-compact it to meet specified density requirements.
- G. Permission for Removal: Obtain permission from the CONTRACTOR's Licensed Structural/Professional Engineer before the removal of any shoring, sheeting or bracing. Retain the responsibility for injury to structures or to other property or persons for failure to leave such shoring, sheeting and bracing in place even though permission for removal has been obtained.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 02316

EARTH EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for performing open-cut excavations to the widths and depths necessary for constructing structures, pipelines and conduits including excavation of any material necessary for any purpose pertinent to the construction of the Work. Dispose of unsuitable and excess material.
- B. Related Work Specified In Other Sections Includes:
 - 1. Section 02230 - Site Clearing
 - 2. Section 02251 - Shoring, Sheeting and Bracing
 - 3. Section 02317 - Backfilling

1.2 DEFINITIONS

- A. Earth: "Earth" includes all materials which, in the opinion of the ENGINEER, do not require blasting, barring, or wedging for their removal from their original beds. Specifically excluded are all ledge and bedrock and boulders or pieces of masonry larger than one (1) cubic yard in volume.

1.3 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Dewatering Excavation Plan: Develop an excavation dewatering plan that considers site ground and groundwater conditions, the type and arrangement of the equipment to be used and the proper method of groundwater disposal. Prepare the dewatering plan before beginning excavations below groundwater. Maintain one copy of the dewatering plan at the project site to be available for inspection while all dewatering operations are underway.

1.4 SITE CONDITIONS

- A. Geotechnical Investigations: A geotechnical investigation and report was prepared by Patriot Engineering & Environmental, Inc. intended only for use by the OWNER and ENGINEER in preparing the Contract Documents.

1. The geotechnical investigation report may be examined for what ever value it may be considered to be worth. However, this information is not guaranteed as to its accuracy or completeness.
 2. The geotechnical investigation report is not part of the Contract Documents.
- B. Actual Conditions: Make any geotechnical investigations deemed necessary to determine actual site conditions.
 - C. Underground Utilities: Locate and identify all existing underground utilities prior to the commencement of Work.
 - D. Quality and Quantity: Make any other investigations and determinations necessary to determine the quality and quantities of earth and rock and the methods to be used to excavate these materials.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

- A. Clearing: Clear open-cut excavation sites of obstructions preparatory to excavation. Clearing in accordance with Section 02230, includes removal and disposal of vegetation, trees, stumps, roots and bushes, except those specified to be protected during trench excavation.
- B. Banks: Shore or slope banks to the angle of repose to prevent slides or cave-ins in accordance with Section 02251.
- C. Hazardous Materials: If hazardous materials not specifically shown or noted are encountered, proceed in accordance with General Conditions Article 4.06, Hazardous Environmental Condition at Site.

3.2 STRUCTURE EXCAVATION

- A. Dewatering: Keep excavation free of water and provide continuous pressure relief to prevent basal heave from water pressure in the substrate below the excavation.
- B. Excavation Size: Provide excavations of sufficient size and only of sufficient size to permit the Work to be economically and properly constructed in the manner and of the size specified.

- C. Excavation Shape: Shape and dimension the bottom of the excavation in earth or rock to the shape and dimensions of the underside of the structure wherever the nature of the excavated material permits.
- D. Compaction: Before placing backfill, proof roll the bottom of the excavations to detect soft spots.
 - 1. For small areas, proof roll with a smooth-faced steel roller filled with water or sand, or compact with a mechanical tamper.
 - 2. Make one complete coverage, with overlap, of the area.
 - 3. Overexcavate soft zones and replace with compacted select fill in accordance with Section 02317.

3.3 TRENCH EXCAVATION

- A. Preparation: Properly brace and protect trees, shrubs, poles and other structures which are to be preserved. Unless shown or specified otherwise, preserve all trees and large shrubs. Hold damage to the root structure to a minimum. Small shrubs may be preserved or replaced with equivalent specimens.
- B. Adequate Space: Keep the width of trenches to a minimum; however provide adequate space for workers to place, joint and backfill the pipe properly.
 - 1. Do not allow the clear width of the trench at the level of the top of the pipe to exceed the sum of the outside diameter of the pipe barrel plus 20 inches for pipe 4 through 24 inches in diameter nor the outside diameter of the pipe barrel plus 2 feet for pipe more than 24 inches in diameter, unless otherwise approved.
 - 2. In sheeted trenches, measure the clear width of the trench at the level of the top of the pipe to the inside of the sheeting.
 - 3. Should the maximum trench widths specified above be exceeded without written approval, provide concrete cradle or encasement for the pipe as directed. No separate payment will be made for such concrete cradle or encasement.
- C. Depth: Excavate trenches to a minimum depth of 6 inches below the bottom of the pipe unless otherwise shown, specified or directed, so that bedding material can be placed in the bottom of the trench and shaped to provide a continuous, firm bearing for pipe barrels and bells.
- D. Unstable Materials: If unstable material is exposed at the level of the bottom of the trench excavation, excavate the material in accordance with the subsection headed "Authorized Additional Excavation".

1. When in the judgment of the ENGINEER the unstable material extends to an excessive depth, the ENGINEER may advise, in writing, the need for stabilization of the trench bottom with additional select fill material or a crushed stone or gravel mat or the need to provide firm support for the pipe by other suitable methods.
 2. Payment for such trench stabilization will be made under the appropriate Contract Items or where no such items exist, as a change in the Work.
- E. Length of Excavation: Keep the open excavated trench preceding the pipe laying operation and the unfilled trench, with pipe in place, to a minimum length which causes the least disturbance. Provide ladders for a means of exit from the trench as required by applicable safety and health regulations.
- F. Water: Allow no water to rise in the trench excavation until sufficient backfill has been placed to prevent pipe flotation.

3.4 SHORT TUNNEL EXCAVATION

- A. Short Tunnel Requirements: In some instances, trees, shrubs, utilities, sidewalks and other obstructions may be encountered, the proximity of which may be a hindrance to opencut trench excavation. In such cases, excavate by means of short tunnels in order to protect such obstructions against damage.
1. Construct the short tunnel by hand, auger or other approved method approximately 6 inches larger than the diameter of pipe bells.
 2. Consider such short tunnel work incidental to the construction of pipelines or conduits and all appurtenances. The need for short tunnels will not be grounds for additional payment.

3.5 FINISHED EXCAVATION

- A. Finish: Provide a reasonably smooth finished surface for all excavations, which is uniformly compacted and free from irregular surface changes.
- B. Finish Methods: Provide a degree of finish which is ordinarily obtainable from blade-grade operations, except as otherwise specified in Section 02317.

3.6 PROTECTION

- A. Traffic and Erosion: Protect newly graded areas from traffic and from erosion.
- B. Repair: Repair any settlement or washing away that may occur from any cause, prior to acceptance. Re-establish grades to the required elevations and slopes.
- C. Other Requirements: Conduct all Work in accordance with the environmental protection requirements specified in Division 1.

3.7 AUTHORIZED ADDITIONAL EXCAVATION

- A. Additional Excavation: Carry the excavation to such additional depth and width as authorized in writing, for the following reasons:
 - 1. In case the materials encountered at the elevations shown are not suitable.
 - 2. In case it is found desirable or necessary to go to an additional depth, or to an additional depth and width.
- B. Refill Materials: Refill such excavated space with either authorized Class D concrete or compacted select fill material.
- C. Compaction: Where necessary, compact fill materials to avoid future settlement.
- D. Payment: Additional earth excavations so authorized and concrete or select fill materials authorized for filling such additional excavation and compaction of select fill materials will be paid for under the appropriate Contract Item.

3.8 UNAUTHORIZED EXCAVATION

- A. Stability: Refill any excavation carried beyond or below the lines and grades shown, except as specified in the subsection headed "Authorized Additional Excavation", with such material and in such manner as may be approved in order to provide for the stability of the various structures.
- B. Refill Materials: Refill spaces beneath all manholes, structures, pipelines, or conduits excavated without authority with Class D concrete or compacted select fill material, as approved.
- C. Payment: Refill for unauthorized excavation will not be measured and no payment will be made therefor.

3.9 SEGREGATION STORAGE AND DISPOSAL OF MATERIAL

- A. Stockpiling Suitable Materials: Stockpile topsoil suitable for final grading and landscaping and excavated material suitable for backfilling or embankments separately on the site in approved locations.
- B. Stockpile Locations: Store excavated and other material a sufficient distance away from the edge of any excavation to prevent its falling or sliding back into the excavation and to prevent collapse of the wall of the excavation. Provide not less than 2 feet clear space between the top of any stockpile and other material and the edge of any excavation.
- C. Excess Materials: Transport and dispose of surplus excavated material and excavated material unsuitable for backfilling or embankments at an off site disposal location. Obtain the off site disposal location.

3.10 REMOVAL OF WATER

- A. Water Removal: At all times during the excavation period and until completion and acceptance of the WORK at final inspection, provide ample means and equipment with which to remove promptly and dispose of properly all water entering any excavation or other parts of the WORK.
- B. Dry Excavations: Keep the excavation dry.
- C. Water Contact: Allow no water to rise over or come in contact with masonry and concrete until the concrete and mortar have attained a set and, in any event, not sooner than 12 hours after placing the masonry or concrete.
- D. Discharge of Water: Dispose of water pumped or drained from the Work in a safe and suitable manner without damage to adjacent property or streets or to other work under construction.
- E. Protection: Provide adequate protection for water discharged onto streets. Protect the street surface at the point of discharge.
- F. Sanitary Sewers: Discharge no water into sanitary sewers.
- G. Storm Sewers: Discharge no water containing settleable solids into storm sewers, drains, or other receiving waters.
- H. Repair: Promptly repair any and all damage caused by dewatering the Work.

END OF SECTION

SECTION 02317

BACKFILLING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Backfill all excavation to the original surface of the ground or to such other grades as may be shown or required. For areas to be covered by topsoil, leave or stop backfill eight (8) inches below the finished grade or as shown. Place site stripped topsoil, or additional off site topsoil if needed, as the final eight (8) inches to finished grade. Remove from all backfill, any compressible, putrescible, or destructible rubbish and refuse and all lumber and braces from the excavated space before backfilling is started. Leave sheeting and bracing in place or remove as the Work progresses.
- B. Equipment Limitations: Do not permit construction equipment used to backfill to travel against and over cast-in-place concrete structures until the specified concrete strength has been obtained, as verified by concrete test cylinders. In special cases where conditions warrant, the above restriction may be modified providing the concrete has gained sufficient strength, as determined from test cylinders, to satisfy design requirements for the removal of forms and the application of load.
- C. Related Work Specified In Other Sections Includes:
 - 1. Section 02230 - Site Clearing
 - 2. Section 02316 - Earth Excavation

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. ASTM D 1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft³ (2,700 kN-m/m³))

PART 2 PRODUCTS

2.1 BACKFILL MATERIAL - GENERAL

- A. General: Backfill with sound materials, free from waste, organic matter, rubbish, boggy or other unsuitable materials.

- B. General Materials Requirements: Conform materials used for backfilling to the requirements specified. Follow common fill requirements whenever drainage or select fill is not specified. Determine and obtain the approval of the appropriate test method where more than one compaction test method is specified.
- C. Frozen Materials: Do not use frozen material for backfilling.

2.2 SELECT FILL

- A. Materials for Select Fill: Use crushed stone or fractured-face aggregate as approved which can be readily and thoroughly compacted to 95 percent of the maximum dry density obtainable by ASTM D 1557. Select fill shall be No. 8 crushed stone or No. 8 fractured-faced aggregate.

- 1. Grade select fill between the following limits:

U.S. Standard Sieve	Percent Passing by Weight
1 inch	100
3/4 inch	75-95
1/2 inch	40-70
3/8 inch	20-50
#4	0-15
#8	0-10

- 2. Very fine sand, uniformly graded sands and gravels, or other materials that have a tendency to flow under pressure when wet are unacceptable as select fill.

2.3 TRENCH AND COMMON BACKFILL

- A. Materials for Trench and Common Backfill – Unimproved Areas: Material from on-site excavation may be used as common fill provided that it can be readily compacted to 90 percent of the maximum dry density obtainable by ASTM D 1557, and does not contain unsuitable material. Select fill may be used as trench and common backfill at no change in the Contract Price.
- B. Materials for Trench and Common Backfill – Improved Areas: Trench backfill within five (5) feet and beneath all roadways, driveways and parking areas will be No. 53 compacted aggregate stone or INDOT B-Borrow Type 1. Trench backfill beneath all walkways will be No. 8 crushed stone or No. 8 fractured-face aggregate.
- C. Granular Materials On-Site: Granular on-site material, which is fairly well graded between the following limits may be used as trench and common backfill:

U.S. Standard Sieve	Percent Passing by Weight
3 inch	100
#10	50-100
#60	20-90
#200	0-45

- 1. Use material passing the No. 40 sieve having a liquid limit less than or equal to 40 and plasticity index less than or equal to 20.
- D. Cohesive Materials On-Site: Cohesive site material, classified as “ML”, may be used as common backfill.
 - 1. The gradation requirements do not apply to cohesive common backfill.
 - 2. Use material having a liquid limit less than or equal to 40 and a plasticity index less than or equal to 20.
- E. Material Approval: All material used as common backfill is subject to approval. If there is insufficient on-site material, import whatever additional off-site material is required which conforms to the specifications and at no additional cost.

PART 3 EXECUTION

3.1 MANHOLE BEDDING

- A. Bedding Compaction: Bed all sewer manholes in well graded, compacted, select fill conforming to the requirements except as otherwise shown, specified, or required. Compact bedding thickness no less than 6 inches for sewer manhole bases.
- B. Concrete Work Mats: Cast cast-in-place manhole bases and other foundations for structures against a Class D concrete work mat in clean and dry excavations, unless otherwise shown, specified or required.
- C. Bedding Placement: Place select fill used for bedding beneath sewer manhole bases, in uniform layers not greater than 6 inches in loose thickness. Thoroughly compact in place with suitable mechanical or pneumatic tools to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.
- D. Use of Select Fill: Bed existing underground structures, tunnels, conduits and pipes crossing the excavation with compacted select fill material. Place bedding material under and around each existing underground structure, tunnel, conduit or pipe and extend underneath and on each side to a distance equal to the depth of the trench below the structure, tunnel, conduit or pipe.

3.2 PIPE BEDDING AND INITIAL BACKFILL

- A. Hand Placement: Place select fill pipe bedding by hand from the bottom of the excavation to 1 foot over the top of the pipe in uniform layers not greater than 6 inches in loose thickness. Tamp under pipe haunches and thoroughly compact pipe bedding in place with suitable mechanical or pneumatic tools to not less than 95 percent of the maximum dry density as determined by ASTM D 1557 (Modified Proctor).
- B. Stone Placement: Do not place large stone fragments in the pipe bedding or backfill to 1 foot over the top of pipes, nor nearer than 2 feet at any point from any pipe, conduit or concrete wall.
- C. Unallowed Materials: Pipe bedding containing very fine sand, uniformly graded sands and gravels, or other materials that have a tendency to flow under pressure when wet is unacceptable.

3.3 BEDDING PLACEMENT AND BACKFILL FOR PIPE IN SHORT TUNNEL

- A. Bed pipelines placed in short tunnels in select fill or Class D concrete. Completely fill the remainder of the annular space between the outside of the pipe wall and the tunnel wall with select fill, suitable job-excavated material, or Class D concrete, as approved. Suitably support pipelines or ducts in short tunnels to permit placing of backfill suitably tamped in place.

3.4 TRENCH BACKFILL

- A. General: Backfill trenches from 1 foot over the top of the pipe, or as shown to the bottom of pavement base course, subgrade for lawns or lawn replacement, to the top of the existing ground surface or to such other grades as may be shown or required.
- B. Materials: Provide select fill, suitable job-excavated material or other material, as specified and as approved for trench backfill.
- C. Depth of Placement - General: Except under pavements, walkways, railroad tracks, parking lots, and street or highway appurtenances, or as otherwise specified, place trench backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place using suitable mechanical or pneumatic equipment. Compact backfill to not less than 90 percent of the maximum dry density as determined by ASTM D 1557.
- D. Depth of Placement - Traffic Areas and Under Utilities: Where pavements, walkways, railroad tracks, parking lots, and street or highway appurtenances are to be placed over trenches and under utilities or utility services crossing the trench, provide trench backfill using select fill placed in uniform layers not greater than 8 inches in loose thickness and thoroughly compacted in place with equipment as specified above. Compact backfill to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.
- E. Dropping of Material on Work: Do trench backfilling work in such a way as to prevent dropping material directly on top of any conduit or pipe through any great vertical distance. Do not allow backfilling material from a bucket to fall directly on a structure or pipe and, in all cases, lower the bucket so that the shock of falling earth will not cause damage.
- F. Distribution of Large Materials: Break lumps up and distribute any stones, pieces of crushed rock or lumps which cannot be readily broken up, throughout the mass so that all interstices are solidly filled with fine material.

3.5 STRUCTURE BACKFILL

- A. Use of Select Fill: Use select fill underneath all structures, and adjacent to structures where pipes, connections, electrical ducts and structural foundations are to be located within this fill. Use select fill beneath all pavements, walkways, and railroad tracks, and extend to the bottom of pavement base course or ballast.
 - 1. Place backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place with suitable approved mechanical or pneumatic equipment.
 - 2. Compact backfill to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.

- B. Use of Common Backfill: Use common granular backfill adjacent to structures in all areas not specified above, unless otherwise shown or specified. Select fill may be used in place of common granular backfill at no additional cost.
 - 1. Extend such backfill from the bottom of the excavation or top of bedding to the bottom of subgrade for lawns or lawn replacement, the top of previously existing ground surface or to such other grades as may be shown or required.
 - 2. Place backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place with suitable equipment, as specified above.
 - 3. Compact backfill to not less than 90 percent of the maximum dry density as determined by ASTM D 1557.

- C. Use of Clay: In unpaved areas adjacent to structures for the top 1 foot of fill directly under lawn subgrades use clay backfill placed in 6-inch lifts. Compact clay backfill to not less than 90 percent of the maximum dry density as determined by ASTM D 1557.
 - 1. Use clay having a liquid limit less than or equal to 40 and a plasticity index less than or equal to 20.

3.6 COMPACTION EQUIPMENT

- A. Equipment and Methods: Carry out all compaction with suitable approved equipment and methods.
 - 1. Compact clay and other cohesive material with sheep's-foot rollers or similar equipment where practicable. Use hand held pneumatic tampers elsewhere for compaction of cohesive backfill material.
 - 2. Compact low cohesive soils with pneumatic-tire rollers or large vibratory equipment where practicable. Use small vibratory equipment elsewhere for compaction of cohesionless backfill material.
 - 3. Do not use heavy compaction equipment over pipelines or other structures, unless the depth of backfill is sufficient to adequately distribute the load.

3.7 FINISH GRADING

- A. Final Contours: Perform finish grading in accordance with the completed contour elevations and grades shown and blend into conformation with remaining natural ground surfaces.
 - 1. Leave all finished grading surfaces smooth and firm to drain.
 - 2. Bring finish grades to elevations within plus or minus 0.10 foot of elevations or contours shown.
- B. Surface Drainage: Perform grading outside of building or structure lines in a manner to prevent accumulation of water within the area. Where necessary or where shown, extend finish grading to ensure that water will be carried to drainage ditches, and the site area left smooth and free from depressions holding water.

3.8 RESPONSIBILITY FOR AFTERSETTLEMENT

- A. Aftersettlement Responsibility: Take responsibility for correcting any depression which may develop in backfilled areas from settlement within one year after the work is fully completed. Provide as needed, backfill material, pavement base replacement, permanent pavement, sidewalk, curb and driveway repair or replacement, and lawn replacement, and perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved.

3.9 INSPECTION AND TESTING OF BACKFILLING

- A. Sampling and Testing: Engage an independent testing laboratory to perform all sampling, testing, and laboratory analysis in accordance with the appropriate ASTM Standard Specification. Provide compaction testing of all in-place backfill after every 400 feet of pipe installation. Record in-place backfill compaction values at 50-foot intervals. Additionally, record compaction values a minimum 10 feet and 5 feet below final surface elevation and at the surface at each location.

Record in-place backfill compaction values a minimum 10 feet and 5 feet below final surface elevation and at the surface at all road/driveway crossings.

Record in-place backfill compaction values a minimum 10 feet and 5 feet below final surface elevation and at the surface at 25-foot intervals through parking areas.

Submit copies of all backfill tests to the ENGINEER. If testing reveals non-compliance with Contract requirements, all additional testing will be made at the Contractor's expense.

- B. Correction of Work: Correct any areas of unsatisfactory compaction by removal and replacement, or by scarifying, aerating or sprinkling as needed and recompaction in place prior to placement of a new lift.

END OF SECTION

SECTION 02370

SLOPE PROTECTION AND EROSION CONTROL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: The requirements for providing slope protection and erosion control practices for all areas within the contract limits and other areas indicated, including work designated in permits and other agreements, as specified in Division 1.
- B. Related Work Specified in Other Sections Includes:
 - 1. Section 02230 - Site Clearing
 - 2. Section 02316 - Earth Excavation
 - 3. Section 02317 - Backfilling
 - 4. Section 02900 - Landscaping Work
 - 5. Section 02445 - Jacking, Augering and Mining

PART 2 PRODUCTS

2.1 GRASS

- A. Provide grass that will not compete with grasses sown later for permanent cover to be a quick-growing species (such as ryegrass, Italian ryegrass or cereal grasses) suitable to the area providing a temporary cover to prevent erosion from areas disturbed by construction.

2.2 MULCHES

- A. Mulches may be hay, straw, fiber mat, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials.

2.3 FERTILIZER

- A. Fertilizer shall be a standard 12-12-12 commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

2.4 FIBER ROLLS

- A. Provide temporary fiber rolls where shown or as required to prevent soil erosion at all stream or ditch crossings. Fiber rolls consist of coconut fibers rolled and bound into a tight tubular roll.

2.5 EROSION CONTROL MATS

- A. Provide erosion control mats (in conjunction with final grass seed) as shown or required to prevent soil erosion and to stabilize steep-sloped areas disturbed by construction and near stream and ditch crossings.

2.6 SILT FENCING

- A. Provide temporary silt fencing where shown and as required to prevent soil erosion at top-of-slope locations.

2.7 RIP RAP - BANK STABILIZATION AND SEDIMENT TRAPS

- A. Provide rip rap bank stabilization and sediment traps where shown or as required to prevent soil erosion and sediment transport and to protect receiving waters.

2.8 CONSTRUCTION ENTRANCE DRIVES

- A. Provide construction entrances that are stabilized using No. 2 stone wherever traffic will be leaving a construction site and traveling on paved roads. A stabilized construction entrance reduces the amount of sediment transported onto paved roads by motorized equipment at entrances to construction sites.

2.9 STORM SEWER / AREA DRAIN INLET PROTECTION

- A. Protect low-lying area drains with storm inlet protection detailed on contract drawings and/or silt fence. Protect street inlets/drains with storm inlet protection detailed on contract drawings.

PART 3 EXECUTION

3.1 EROSION AND SEDIMENT CONTROL PLAN

- A. General: Under Title 327 Indiana Administrative Code 15-5, a general permit from the Indiana Department of Environmental Management is required for construction activities that result in the disturbance of one (1) or more acres of land. Under 327 IAC 15-5-4(20), land-disturbing activity is defined as, "any

manmade change of the land surface, including removing vegetative cover that exposes the underlying soil, excavating, filling, transporting, and grading”.

For the Contractor’s convenience, the City of West Lafayette has prepared an Erosion and Sediment Control Plan to meet the requirements of the Rule 5 General Storm Water Runoff Permit. The Contractor may develop a separate Plan for approval by the Tippecanoe County Soil and Water Conservation District.

- B. Availability: Keep the Erosion and Sediment Control Plan at the construction site at all times available for inspection for the entire construction period.
- C. Ordinances: Comply with all erosion and siltation control ordinances in effect and required by governing bodies having jurisdiction over the construction site and provide appropriate control measures as required.
- D. Payment: Include the cost of the erosion and sediment control devices in the Contract Price. No separate payment will be made for these items unless otherwise specified.

3.2 EROSION AND SEDIMENT CONTROL

- A. Provide necessary precautions and facilities to protect all indicated areas within the Contract limits from discharges resulting from construction operations, excessive erosion runoff of the construction site, silting and any other contamination resulting from construction work. Provide erosion control practices conforming to the specified requirements and to include but not limited to the following provisions:
 - 1. Place all erosion and siltation control measures prior to or as the first step in grading, clearing and grubbing.
 - 2. Mulch and seed all sewer pipe trenches and disturbed areas associated with pipeline construction within fifteen (15) days after backfill. Do not allow more than two hundred (200) feet of trenches to be open at any one time.
 - 3. Place all excavated material on the uphill side of trenches where possible. Do not place materials in stream beds. Temporarily seed any soil stockpile left undisturbed for greater than fifteen (15) days with annual Rye or Winter Wheat to reduce sediment runoff, regardless of location of stockpile.
 - 4. Mulch and seed all temporary earth berms, diversions, erosion barriers and temporary stockpiles with temporary vegetative cover within ten (10) days after grading.
 - 5. Do not stockpile or otherwise place dredged, excavated or other material, at any time, in or near a stream bed which may increase the turbidity of the

water. If turbidity producing materials are present, hold surface drainage from cuts and fills within the construction limits and from borrow and waste disposal areas in suitable sedimentation ponds or grade surface drainage to control erosion within acceptable limits. Provide and maintain temporary erosion and sediment control measures such as berms, dikes, drains, or sedimentation basins, if required to meet the above standards, until permanent drainage and erosion control facilities are completed and operative. Hold to a minimum the area of bare soil exposed at any one time by construction operations.

6. Provide temporary erosion and sediment control measures to include but not be limited to the following:
 - a. Installation (and ultimate removal) of silt screens.
 - b. Silt traps around construction areas for all required structures.
 - c. Diked area with earth berm and silt trap for draining dredged material.
 - d. Straw bales with silt traps along top of slope of fill area plus seeding and mulching of entire fill area not otherwise protected.

3.3 MAINTENANCE INSPECTION PROCEDURES

A. Inspections:

1. Inspect in place erosion control measures once a week.
2. Inspect in place erosion control measures within 24 hours after any storm event greater than 0.25 inches of rain per 24-hour period.
3. Qualified personnel shall conduct a weekly inspection of the construction site to identify areas contributing to storm water discharges associated with construction activity.
4. Disturbed areas, material storage areas, and equipment storage areas that are exposed to precipitation shall be inspected on a regular basis for evidence of, or the potential for, pollutants entering the drainage system.
5. Storm water discharge locations shall be inspected to determine if erosion control measures are effective in preventing significant impacts to receiving waters.
6. Erosion control devices installed as specified shall be observed to ensure that they are operating properly.

7. Haul routes and construction entrance to work areas shall be periodically inspected for evidence of off-site vehicle tracking of mud and dirt.
 8. Contractor's staging area shall be inspected to ensure that solid and liquid wastes are being properly disposed of and not discharged into storm water runoff.
- B. Maintenance: All erosion control measures shall be maintained throughout the project and until such time as the disturbed area has been completely stabilized or other provisions have altered the need for these measures. The Contractor shall:
1. Replace mulch materials to their original level when the level has been substantially reduced due to decomposition of the organic mulches and displacement or disappearance of both the organic and inorganic mulches.
 2. Remove rubbish and channel obstructions from bare and vegetated channel within the project limits. The Contractor shall repair damage from scour or bank failure, rodent holes and breaching of diversion structures. Excessive wear, movement or failure of erosion control blankets shall be repaired immediately. Deposits of sediment shall be removed from the channel.
 3. Repair any damage to silt fence barriers immediately and monitor barriers daily during prolonged rainfall.
 4. Repair or replace any silt fence fabric that has decomposed or become ineffective prior to its expected usable life.
 5. Remove sediment deposits after each storm event. Sediment must be removed when deposits reach approximately half the height of the silt fence barrier.
 6. Till and smooth to match the existing grade and reseed any sediment deposits remaining in place after the silt fence barrier is no longer required.
 7. Maintain the construction entrances, as shown and specified, in a condition to prevent tracking or flowing of sediment onto roads. This could require periodic top dressing with additional surface materials as required. Repair and clean out any features used to trap sediment and remove all sediment spilled, dropped, washed or tracked onto road and return to the point of likely origin. Sweep streets as required, or as directed by OWNER, to remove sediment from paved roads.

8. All temporary erosion and sediment control practices shall be removed and disposed of within thirty (30) days after site stabilization is achieved or after the temporary practices are no longer needed. Trapped sediment shall be permanently stabilized to prevent further erosion.

END OF SECTION

SECTION 02445

JACKING, AUGERING AND MINING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Pipeline installation in casing pipe beneath highways, railroads, and other structures may be installed by jacking and augering or by jacking and mining.
- B. Related Work Specified in Other Sections Includes:
 - 1. Section 02251 – Shoring, Sheeting and Bracing
 - 2. Section 02316 – Earth Excavation

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. ASTM A 139 - Specification for Electric-Fusion (Arc) -Welded Steel Pipe (NPS in 4 in. and Over)
 - 2. OSHA PL-91-596 - Occupational Safety Health Act of 1970 Public Law 91-596

1.3 SUBMITTALS

- A. Provide all submittals, including the following, as specified in Division 1.
 - 1. Shop drawings of the jacking pipe, jacking frame, jacking head, reaction blocks, sheeting, including design calculations and the complete jacking installation. ENGINEER's review of calculations and working drawings will be limited to confirming that the design was prepared by a licensed professional engineer registered in the State of Indiana.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all products and materials as specified in Division 1.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Polymer Casing Spacers

- a. Cascade Waterworks Manufacturing Company, Yorkville, IL

2.2 MATERIALS

- A. General: Use one of the following for casing piping.

1. Welded steel pipe, minimum 0.5-inch wall thickness, meeting the requirements of ASTM A 139, Grade B.

- B. Fill Material: Use fill material consisting of 1-1/4 pounds of Bentonite per gallon of water during jacking to fill any voids between pipe and the earth.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install all carrier pipes in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

- B. Casing Spacers:

1. Polymer Casing Spacers. Secure polymer casing spacers to the carrier pipe at 4-foot intervals inside the casing pipe. Arrange the spacers to provide 360-degree support for and to prevent floatation or shifting of the carrier pipe.

Provide 12-inch width polymer casing spacers comprised of a shell of 14-gauge (minimum) Type 304 stainless steel with runners of ultra high molecular weight polymer. Line the shell with polyvinyl chloride or neoprene rubber and support the runners with Type 304 stainless steel risers. Provide the number of runners as recommended by the manufacturer.

2. Timber Casing Spacers. Secure timber casing spacers to the carrier pipe at 4-foot intervals inside the casing pipe. Arrange the spacers to provide 360-degree support for and to prevent floatation or shifting of the carrier pipe.

Provide timber casing spacers of 4-inch x 4-inch pressure treated timbers banded to the carrier pipe with 2-inch wide, 1/4-inch thick Type 304 stainless steel bands. This alternate method may require a larger casing pipe to maintain a minimum of two inches clearance between the bell of the carrier pipe and the inside diameter of the casing pipe. The CONTRACTOR will bear the cost of a larger casing pipe if required.

C. Grouting Annular Space:

1. After carrier pipe is placed, fill the annular space between the carrier pipe and the casing pipe with cellular grout having a minimum compressive strength of 500 psi.
2. Utilize temporary vent piping or other means to ensure the casing voids are filled completely with no air spaces or gaps.

D. Casing End Seals:

1. Construct casing end seals of 8-inch thick brick masonry bulkheads using Grade MS 4-inch brick. Provide weep holes at the lower ends of both casing end seals.

E. Permit Requirements: Conform all operations and materials to the regulations of the highway department, railroad or other agency having jurisdiction over the crossing in accordance with utility crossing permit.

F. Augering: Conduct augering with the proper equipment and procedure such that the carrier pipe and the casing pipe can be installed to the grades specified without disturbing the adjacent earth.

G. Hand Mining: Conduct hand mining only in casings that are sufficiently large enough to permit such operation. Provide adequate fresh air supply within the casing pipe and conduct all operations in accordance with the requirements of the U.S. Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act 7 1970 (PL-91-596).

H. Jacking Pit: Make the jacking pit of adequate length to provide room for the jacking frame, the jacking head, the reaction blocks, the jacks, auger rig, and the jacking pipe. Make the pit sufficiently wide to allow ample working space on each side of the jacking frame. Make the depth of the pit such that the invert of the

pipe, when placed on the guide frame, is at the elevation desired for the completed line. Provide excavation in conformance with Section 02316.

- I. Sheeting: Sheet the jacking pit tightly and keep it dry at all times. Conform sheeting to Section 02251.
- J. Jacking Frame: Use a jacking frame that applies a uniform pressure over the entire pipe wall area of the pipe to be jacked.
- K. Reaction Blocks: Use reaction blocks designed to carry the thrust of the jacks to the soil without excessive soil deflection and in such a manner as to avoid any disturbance of adjacent structures or utilities.
- L. Operation: Use hydraulic jacks in the jacking operation. Use extreme care to hold the pipe to exact line and grade. Advance the excavation at the heading manually or with an auger. Do not allow the advance to exceed one foot ahead of the casing pipe. Make every effort to avoid loss of earth outside the casing.
- M. Safety Railing: Provide a safety railing all around the top of the pit at all times.

END OF SECTION

SECTION 02500

LAYING AND JOINTING BURIED PIPELINES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Installation of all underground pipelines. Provide pipeline materials, encasements, coatings and linings as specified and pipe of the types, sizes and classes shown or specified.

1. Use proper and suitable tools and appliances for the safe and convenient cutting, handling, and laying of the pipe and fittings.
2. Use suitable fittings where shown and at connections or where grade or alignment changes require offsets greater than those recommended and approved.
3. Lay all underground pipelines not supported on piles or concrete cradle in select fill bedding material.
4. Close off all lines with bulkheads when pipe laying is not in progress.

B. Related Work Specified in Other Sections Includes:

1. Section 02316 – Earth Excavation
2. Section 02317 - Backfilling
3. Section 02516 - Leakage Tests

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 60000 psi Tensile
2. ASTM D 2321 - Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe
3. ASTM E 165 - Practice for Liquid Penetrant Examination
4. ASTM E 709 - Practice for Magnetic Particle Examination

1.3 DELIVERY, STORAGE AND HANDLING

- A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows:
- B. Transportation and Delivery: Take every precaution to prevent injury to the pipe during transportation and delivery to the site.
- C. Loading and Unloading: Take extreme care in loading and unloading the pipe and fittings.
 - 1. Work slowly with skids or suitable power equipment, and keep pipe under perfect control at all times.
 - 2. Under no condition is the pipe to be dropped, bumped, dragged, pushed, or moved in any way that will cause damage to the pipe or coating.
- D. Sling: When handling the pipe with a crane, use a suitable sling around the pipe.
 - 1. Under no condition pass the sling through the pipe.
 - 2. Use a nylon canvas type sling or other material designed to prevent damage to the pipe and coating.
 - 3. When handling reinforced concrete pipe or uncoated steel or ductile iron pipe, steel cables, chain or like slings are acceptable.
- E. Damaged Piping: If in the process of transportation, handling, or laying, any pipe or fitting is damaged, replace or repair such pipe or pipes.
- F. Blocking and Stakes: Provide suitable blocking and stakes installed to prevent pipe from rolling.
 - 1. Obtain approval for the type of blocking and stakes, and the method of installation.
- G. Storage for Gaskets: Store gaskets for pipe joints in a cool place and protect gaskets from light, sunlight, heat, oil, or grease until installed.
 - 1. Do not use any gaskets showing signs of checking, weathering or other deterioration.
 - 2. Do not use gasket material stored in excess of six months without approval.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 OPEN CUT INSTALLATION

- A. Dry Trench Bottoms: Lay pipe only in dry trenches having a stable bottom.
 - 1. Where groundwater is encountered, make every effort to obtain a dry trench bottom.
 - 2. If a dry trench bottom has not been obtained due to improper or insufficient use of all known methods of trench dewatering, then excavate below grade and place sufficient select fill material, crushed stone, or Class D concrete over the trench bottom.
 - 3. If all efforts fail to obtain a stable dry trench bottom and it is determined that the trench bottom is unsuitable for pipe foundation, obtain an order, in writing, for the kind of stabilization to be constructed.
 - 4. Perform trench excavation and backfill in accordance with Sections 02316 and 02317.

- B. Pipe Laying - General
 - 1. Generally, lay all pipe with bells pointing ahead.
 - 2. Carefully place each pipe and check for alignment and grade.
 - 3. Make adjustments to bring pipe to line and grade by scraping away or filling in select fill material under the body of the pipe.
 - 4. Wedging or blocking up the pipe barrel is not permitted.
 - 5. Bring the faces of the spigot ends and the bells of pipes into fair contact and firmly and completely shove the pipe home.
 - 6. As the work progresses, clean the interior of pipelines of all dirt and superfluous materials of every description.
 - 7. Keep all lines absolutely clean during construction.

8. Lay pipelines accurately to line and grade.

C. Pipe Laying - Trenches:

1. Lay all pipelines in trench excavations on select fill bedding, Class D concrete cradle or other foundations as shown, specified or ordered in writing.
2. Properly secure the pipe against movement and make the pipe joints in the excavation as required.
3. Carefully grade and compact pipe bedding.
4. Bell Holes:
 - a. Cut out bell holes for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length.
 - b. Thoroughly tamp bell holes full of select fill material following the making of each joint.

D. PVC Pipe Elastomeric Seal (Gasket) Joints:

1. Assembly: In making up the gasket joint, brush the gasket seat in the socket thoroughly with a brush and wipe the gasket with a cloth.
 - a. Apply a thin film of lubricant to the inside surface of the gasket that will come in contact with the entering pipe.
 - b. Brush the plain end of the pipe to be entered thoroughly with a brush and place it in alignment with the bell of the pipe to which it is to be joined.
 - c. Exert sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket to make the joint. Provide wood blocking to prevent metal to PVC contact.
2. Positioning: Before proceeding with backfilling, feel completely around the joint using a feeler gauge to confirm that the gasket is in its proper position.
 - a. If the gasket can be felt out of position, withdraw the pipe and examine the gasket for cuts or breaks.
 - b. If the gasket has been damaged, replace the pipe with a new one.

3. Field Cut Pipe: Cut pipe square. Bevel pipe end to match factory bevel. Round off all sharp edges.

E. Ductile Iron Pipe Rubber Gasket Joints:

1. Assembly: In making up the rubber gasket joint, brush the gasket seat in the socket thoroughly with a wire brush and wipe the gasket with a cloth.
 - a. Place the gasket in the socket with the large round end entering first so that the groove fits over the bead in the seat.
 - b. Apply a thin film of lubricant to the inside surface of the gasket that will come in contact with the entering pipe.
 - c. Brush the plain end of the pipe to be entered thoroughly with a wire brush and place it in alignment with the bell of the pipe to which it is to be joined.
 - d. Exert sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket to make the joint.
2. Positioning: Before proceeding with backfilling, feel completely around the joint using a feeler gauge to confirm that the gasket is in its proper position.
 - a. If the gasket can be felt out of position, withdraw the pipe and examine the gasket for cuts or breaks.
 - b. If the gasket has been damaged, replace it with a new one before re-installing the pipe.
3. Sealing/Repairing Field Cut Pipe: Cut pipe square. Remove any damaged lining caused by field cutting operations or handling and clean any exposed metal by sanding or scraping. After area has been cleaned and roughened, apply a coat of Protecto Joint Compound (used to repair Protecto 401 Ceramic Epoxy Lining) in accordance with lining manufacturer recommendations. Additionally, coat the exposed metal surface of the cut pipe end. To ensure proper sealing, overlap at least one inch of the lining with this repair material. Apply Protecto Joint Compound in accordance with lining manufacturer recommendations.

- F. Pipe Placement – Existing Utilities: Rebed, in compacted select fill material, other utilities which cross over the new pipe or cross under the new pipe with less than 12 inches clear vertical separation. Compact the bedding to densities required for new pipeline construction and extend bedding below the utility to undisturbed earth.

G. Polyethylene Encasement: Provide loose polyethylene encasement wrapped around ductile iron pipe for corrosion protection as specified.

1. Cut a section of polyethylene (PE) tube approximately 2 feet longer than the pipe section. Slip PE tube around the pipe, starting at the spigot end. Bunch the tube accordion-fashion on the end of the pipe. Pull back the overhanging end of the tube until it clears the pipe end.
2. Dig a shallow bell hole in the trench bottom at the joint location to facilitate installation of PE tube. Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe.
3. Move pipe sling to the bell end of the pipe and lift the pipe slightly to provide enough clearance to easily slide the tube. Spread the tube over the entire barrel of the pipe. Take care not to trap dirt or other bedding material between the wrap and the pipe.
4. Make the overlap of the PE tube by pulling back the bunched PE from the preceding length of pipe and securing it in place. Take up the slack in the tube along the barrel of the pipe to make a snug, but not tight fit. Fold excess PE back over the top of the pipe and secure it in place every 3 feet.
5. Repair all small rips, tears, or other tube damage with adhesive tape. If the PE is badly damaged, repair the damaged area with a sheet of PE and seal the edges of the repair with adhesive tape.
6. When making pipe-to-manhole connections, secure PE wrap over the flexible boot (not inside the boot) and secure the other end of the PE wrap over the previous wrapped portion of the pipe.

H. Concrete Cradle:

1. General: When a concrete cradle is shown, specified, or ordered in writing, lay the pipe to grade by supporting each section on concrete blocks located near each end.
 - a. Shape the tops of the blocks to fit the outside diameter of the pipe.
 - b. Set the blocks approximately 3/8 inch low.
 - c. Place the pipe on the blocks on a layer of stiff mortar of sufficient thickness to bring the pipes to exact grade.

- d. Timber blocking, of a type approved, may be employed in place of concrete blocks.
2. Cradle: Place Class D concrete cradle, on one side only, until it has risen above the invert on the other side, after which deposit the remainder of the concrete on both sides to the pipe spring line.
 - a. Prevent movement of the pipe during concrete placement.
- I. Concrete Encasement: When concrete encasement is to be provided, as shown, specified, or ordered in writing, lay and block the pipeline and place concrete as specified for concrete cradle.
 1. Continue the placing of concrete to provide complete encasement to the dimensions shown, specified, or ordered.

3.2 TEMPORARY BULKHEADS

- A. Provide temporary bulkheads at the ends of sections where adjoining pipelines have not been completed, and in connections built into pipelines where adjoining pipelines or structures have not been completed and are not ready to be connected.
- B. Remove bulkheads encountered in connecting sewers or structures included in this Contract, or in pipelines or structures previously built, when they are no longer needed or when ordered.

3.3 PIPELINE DETECTION

- A. Tracing Wire/Utility Marking Posts: Provide an insulated minimum #10 solid copper tracing wire for detection of nonmetallic pipelines (sewer lateral stubs only). Tracing wire shall be wrapped around the pipe so that one revolution is made at least every pipe joint. Install utility marking posts at sewer stub locations, or as indicated on drawings. Posts are to be green, 3.5-inch diameter by 6-feet long plastic with testing caps. Posts are to have black lettering stating "Sewage Lateral – City of West Lafayette". Posts are to be 3'-6" above final grade.

3.4 FIELD QUALITY CONTROL

- A. Testing: Test pipelines in accordance with Section 02516.
- B. Inspection: Clean, inspect, and examine each piece of pipe and special for defects before it is installed.
 1. Cut away any lumps or projections on the face of the spigot end or the shoulder.

2. Do not use any cracked, broken, or defective pieces in the work.
3. If any defective piece should be discovered after having been installed, remove and replace this piece with a sound piece in a satisfactory manner at no increase in Contract Price.

3.5 CLEANING

- A. General: Thoroughly clean all pipe before it is laid and keep it clean until it is accepted in the completed work.
- B. Removal of Materials: Exercise special care to avoid leaving bits of wood, dirt, and other foreign particles in the pipe. If any particles are discovered before the final acceptance of the work, remove and clean the pipe.

3.6 SCHEDULE

- A. Definitions: Abbreviations used in the schedule are:

1. Pipe Materials:

- | | | |
|----|-----|--------------------|
| a. | STL | Steel |
| b. | PVC | Polyvinyl Chloride |
| c. | DIP | Ductile Iron Pipe |

2. Joints:

- | | | |
|----|-----|-----------------|
| a. | PO | Push-on Joint |
| b. | W | Welded |
| c. | B&S | Bell and spigot |

3. Coatings and Linings:

- | | | |
|----|----|---------------------------------------|
| a. | BC | Bituminous – Cold Application Coating |
| b. | P | Painted |
| c. | CE | Ceramic Epoxy (Protecto 401) |
| d. | PE | Polyethylene Encasement |

- B. Schedule: Provide products as listed in the following schedule:

BURIED PIPE SCHEDULE

Service	Size (Inches)	Pipe Material	Protective Coatings		Joints	Test Pressure (psig) ⁽¹⁾	Wall Thickness / Pressure Class ⁽²⁾
			Int.	Ext.			
Sanitary Sewer							
0' - 20' Deep	18	PVC	--	--	B&S	--	SDR26-ASTM F679
> 20'-28' Deep	18	PVC	--	--	B&S	--	DR18 - AWWAC905
> 28' Deep	18	DIP	CE	PE	PO	--	Class 53
Casing Pipe	30	STL	P	BC	W	--	0.5 inches

(1) Reference Section 02516.

(2) Refer to Pipe Tables on Contract Drawings.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 02505

BURIED DUCTILE-IRON PIPE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for providing buried lined ductile-iron pipe and appurtenances.
 - 1. Provide ductile-iron pipe complete with all necessary jointing facilities and materials, coatings and linings, polyethylene encasement, specials, adapters and other appurtenances required for installation in and completion of the pipelines to be constructed.
- B. Related Work Specified In Other Sections Includes:
 - 1. Section 02500 - Laying and Jointing Buried Pipelines
 - 2. Section 02516 - Leakage Test

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids
 - 2. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
 - 3. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast, for Water and Other Liquids

1.3 SYSTEM DESCRIPTION

- A. Design Standards: Provide ductile-iron pipe meeting the requirements of AWWA C151/A21.51.
 - 1. Provide pipe of the various sizes and classes where shown.
 - 2. Provide loose polyethylene encasement as specified.
 - 3. Construct concrete encasements where shown.

1.4 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Submit the following shop drawings:
 - 1. Catalog data for pipe and joints
 - 2. Lining manufacturer's catalog data for material used to line inside of pipe, including surface preparation, application procedures, and handling of lined pipe.
 - 3. Polyethylene encasement catalog data and pipe manufacturer's installation instructions.
- C. Quality Control: Submit certificate of compliance for pipe, fittings, gaskets, lining, coatings, and specials in accordance with this Section.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all pipe, fittings and appurtenances as specified in Division 1 and Section 02500.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below. Manufacturers of equivalent products may be submitted.
 - 1. Ductile-iron pipe.
 - a. American Cast Iron Pipe Company
 - b. McWane Incorporated
 - c. United States Pipe and Foundry
 - 2. Interior Pipe Lining.
 - a. Protecto 401 Ceramic Epoxy
 - 3. Approved Pipe Lining Applicators.
 - a. Baumann Coatings, Inc., Bessemer, AL
 - b. Vulcan Materials, Birmingham, AL
 - c. Bredero Shaw Company, Houston, TX

2.2 MATERIALS

- A. Rubber Gasket Joints: Provide mechanical joints and push-on type joints meeting the requirements of AWWA C111/A21.11.
- B. Temporary Bulkheads: Provide temporary bulkheads at the ends of sections where adjoining pipelines have not been completed and are not ready to connect.
 - 1. Remove all temporary bulkheads when they are no longer needed.
- C. Linings and Coatings
 - 1. Ceramic Epoxy Interior Lining: Line all sanitary sewer pipe with a ceramic epoxy not less than 40 mils nominal dry film thickness. Line exterior of spigot ends and interior of socket with ceramic epoxy 8 to 10 mils nominal dry film thickness. Pipe lining material shall be applied in accordance with the lining manufacturer recommendations.
 - 2. Asphaltic Exterior Coating: Shop coat pipe that is to be buried with the standard asphaltic outside coating specified in AWWA C151/A21.51.
 - 3. Polyethylene Encasement: Provide loose polyethylene encasement meeting the requirements of AWWA C105/A21.5, Method "A". Install polyethylene encasement in accordance with pipe manufacturer's recommendations and in accordance with Section 02500.
 - 4. Encased Pipe: Do not coat or paint the outside of fittings and pipe that are to be encased in concrete.
 - 5. Labels: Paint the size, class designation, manufacture date, and control number in white on the outside of each pipe, fitting, and special casting after the shop coat has hardened.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install all buried ductile-iron pipe in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1 and Section 02500.

3.2 LEAKAGE TESTING

- A. Cleaning: Flush clean and test all pipes after installation.
- B. Testing: Test pipes for leaks and repair or tighten as required.
- C. Procedures: Conduct tests in accordance with Section 02516.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 02507

BURIED POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for providing buried PVC pipe, fittings and appurtenances.
1. For gravity sewer applications, provide PVC pipe and fittings complete with all necessary jointing facilities and materials, specials, adapters and other appurtenances required for installation in and completion of the pipelines to be constructed.
- B. Related Work Specified In Other Sections Includes:
1. Section 02500 - Laying and Jointing Buried Pipelines
 2. Section 02516 - Leakage Test

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:
1. ASTM D 3034 - Type PSM PVC Sewer Pipe and Fittings
 2. ASTM F 679 - Poly(Vinyl Chloride) (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings
 3. ASTM D 2321 - Underground Installation of Flexible Thermoplastic Sewer Pipe
 4. ASTM F 477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 5. ASTM D 3139 - Joints for Plastic Pressure Pipe Using Flexible Elastomeric Seals
 6. AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings 3 inches thru 48 inches, for Water and Other Liquids

7. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron and Gray Iron Pressure Pipe and Fittings
8. AWWA C905 - PVC Pressure Pipe and Fabricated Fittings, 14 inches thru 48 inches.

1.3 SYSTEM DESCRIPTION

- A. Design Standards: Provide 4-inch through 15-inch PVC gravity sewer pipe and fittings meeting the requirements of ASTM D 3034. Provide 18-inch and larger PVC gravity sewer pipe and fittings meeting the requirements of ASTM F 679 or AWWA C905, as specified.
 1. Provide pipe of the various sizes and classes as specified in Section 02500. Restrain pressure pipe joints where shown.
 2. Construct concrete encasements where shown.

1.4 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Submit the following shop drawings:
 1. Catalog data for sewer pipe, joints, fittings, sleeves, harnessing, and all appurtenances.
 2. Manufacturer's installation instructions.
- C. Quality Control: Submit certificate of compliance for pipe, fittings, gaskets, coatings, specials, sleeves and cleanouts in accordance with this Section.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all pipe, fittings and appurtenances as specified in Division 1 and Section 02500.
- B. When PVC pipe is delivered to the jobsite it shall not be exposed to sunlight for more than three (3) weeks. PVC pipe exposed to sunlight for more than three (3) weeks shall be covered with an opaque protective covering. The pipe shall be left stacked and no more pipe than can be installed in one day shall be strung along the jobsite.

PART 2 PRODUCTS

2.1 OPEN-CUT INSTALLATION

B. MANUFACTURERS

Acceptable manufacturers are listed below. Manufacturers of equivalent products may be submitted.

1. Diamond Plastics Corporation, Grand Island, Nebraska
2. North American Pipe, Houston, Texas
3. J-M Manufacturing Company, Inc., Livingston, New Jersey

B. MATERIALS

1. Gravity Sewer Pipe and Joints: Provide gravity sewer pipe with joints that are a molded integral part of the pipe section. Provide joints with elastomeric gasket joints in accordance with ASTM F 477. Provide fittings matching the pipe type for all depths of bury. Do not use joints or couplings furnished loose or solvent cement joints.
2. Rubber Gasket Joints: Provide mechanical joints meeting the requirements of AWWA C111/A21.11.
3. Color: Provide pipe made of 100% of the color specified. Provide green sewer pipe.
4. Pipe Marking: Provide mark on each pipe segment to designate compliance with applicable ASTM specification.
5. Temporary Bulkheads: Provide temporary bulkheads at the ends of sections where adjoining pipelines have not been completed and are not ready to connect. Remove all temporary bulkheads when they are no longer needed.
6. Date of Manufacturer: Provide pipe and fittings manufactured no earlier than 12 month period preceding the date of the Agreement.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install all buried PVC pipe in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1 and Section 02500.

3.2 LEAKAGE TESTING

- A. Cleaning: Flush clean and test all pipes after installation.
- B. Testing: Test pipes for leaks and repair or tighten as required.
- C. Procedures: Conduct tests in accordance with Section 02516.

3.3 SCHEDULES

- A. Refer to the Schedules contained in Section 02500 Laying and Jointing Buried Pipelines for information on the piping that is to be constructed using the pipe materials and methods specified herein.

END OF SECTION

SECTION 02509

PRECAST MANHOLES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for providing precast manhole sections including bases, risers, cones and all other appurtenances for a complete installation. Provide manhole sections built with steps and in accordance with the details shown. Construct manhole sections of precast reinforced concrete conforming to ASTM C 478.

1.2 REFERENCE

- A. Codes and standards referred to in this Section are:
1. ASTM A 48 - Specification for Gray Cast Iron Castings
 2. ASTM C 478 - Specification for Precast Reinforced Concrete Manhole Sections
 3. ASTM C 443 - Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
 4. ASTM C 923 - Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes
 5. ASTM D 4101 - Specification for Propylene Plastic Injection and Extrusion Materials
 6. ASTM A 615 - Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 7. ASTM C 877 - Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections

1.3 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.

- B. Shop Drawings:
 - 1. Submit shop drawings of precast manholes and structures including evidence of compliance with ASTM standards, and a table or chart showing the specific sections and the orientation of manhole penetrations for each manhole supplied.
 - 2. Submit shop drawings of the preformed joint sealant, resilient connector, manhole sealant, chimney seal, manhole frame and cover, and manhole step.
- C. Quality Control: Submit shop and field test reports of concrete samples tested in an approved laboratory.

1.4 DELIVERY, STORAGE AND HANDLING

- A. General: Take every precaution to prevent damage to the manhole sections during transportation and unloading. Unload manhole sections using skids, pipe hooks, rope slings, or suitable power equipment, if necessary, and keep the sections under control at all times. Do not allow the manhole sections to be dropped, dumped or dragged under any conditions. Follow applicable requirements specified in Division 1.
- B. Damaged Section: If any manhole section is damaged in the process of transportation or handling, reject and immediately remove such sections from the site, and replace the damaged manhole sections at no increase in Contract Amount.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.
 - 1. Preformed Joint Sealing Compound:
 - a. Ram-Nek, as manufactured by K.T. Snyder Company, Inc., Houston, TX
 - b. Kent-Seal, as manufactured by Hamilton-Kent, Kent, OH
 - 2. Manhole Sealant
 - a. IPANEX, as manufactured by IPA Systems, Inc., Philadelphia, PA
 - b. Force 10,000 D, as manufactured by W.R. Grace, Cambridge, MA

3. Resilient Connectors:
 - a. KOR-N-SEAL, as manufactured by NPC Systems, Inc., Milford, NH
 - b. PSX: Positive Seal, as manufactured by Press-Seal Gasket, Corp., Fort Wayne, IN
4. Butyl Rubber Backplaster:
 - a. TROWELABLE EZ-STIK #3, as manufactured by Press-Seal Gasket, Corp., Fort Wayne, IN
 - b. KENT SEAL #3, as manufactured by Hamilton-Kent, Kent OH
5. External Chimney Seal:
 - a. Cretex Specialty Products
 - b. Adaptor, Inc.
6. Manhole Frames and Covers:
 - a. Frame number 1022 and cover (with City of West Lafayette Logo) to be Type "B" with concealed pickhole, as manufactured by East Jordan Iron Works, East Jordan, MI
 - b. Frame number R-1772 and cover (with City of West Lafayette Logo) to be Type "B" with concealed pickhole, as manufactured by Neenah Foundry, Neenah, WI
7. External Concrete Joint Collar:
 - a. MacWrap, as manufactured by Mar Mac Construction Products, McBee, SC

2.2 MATERIALS

- A. Concrete, Steel Reinforcement and Aggregates: Provide reinforced concrete, cementitious materials, aggregates and steel reinforcement conforming to the requirements of ASTM C 478 for constructing sewer manholes.
- B. Manhole Sealant: Provide sanitary manholes with waterproofing admixtures to assure water-tight manhole construction. Use minimum dosage requirement for IPANEX waterproofing admixture of 14 oz per 100 lb of cement. Use minimum dosage requirement for Force 10,000 D microsilica of 10% by weight of cement.
- C. Preformed Joint Sealing Compound: Provide preformed joint sealing compound for joining manhole sections.

- D. Butyl Rubber Backplaster: Provide trowelable grade butyl rubber base backplaster material to seal exterior sanitary manhole joints and adjusting rings.
- E. O-ring Joints: Provide O-ring rubber gasket conforming to ASTM C 433 for joining manhole sections.
- F. Resilient Connectors: Provide resilient connectors conforming to ASTM C 923 for joining sewers to manhole riser sections.
- G. Adjusting Rings: Provide precast concrete adjusting rings conforming to ASTM C 478 for adjusting frame and cover elevation.
- H. Manhole Frames and Covers: Provide manhole frames and covers conforming to ASTM A 48, Class 35B.
- I. Manhole Steps: Provide manhole steps conforming to ASTM D 4101 and A 615.
- J. External Concrete Joint Collar: Provide external joint collar that has a high-strength, internal polypropylene mesh and an impervious polyethylene exterior. Compression bands conforming to ASTM C 877 provide positive seal on each side of the joint.

2.3 CONSTRUCTION

- A. Manhole Base Section: Provide manholes of 4500 psi reinforced concrete, designed to meet ASTM C478. Provide manhole base and first riser section as one complete precast unit, unless otherwise shown. When benches are made at the manufacturing site, provide concrete used for benched inverts conforming to the requirements for concrete used for precast sections. When benches are made in the field, use Class D concrete and including waterproofing admixture as specified in paragraph 2.2B.
- B. Manhole Joints: Join riser, cone and flat slab top sections with O-ring rubber gasket joints plus preformed joint sealing compound in accordance with the sealing compound manufacturer's recommendations, except that install sufficient sealing compound so as to show a "squeeze-out" on the outside of the joint.

Apply trowelable grade butyl rubber backplaster material one-quarter (1/4) inch minimum thickness, when dry, on the outside of the sanitary manhole at each joint, extending six (6) inches above and below the joint. Apply butyl rubber backplaster on the outside of the chimney from three (3) inches below the bottom adjustment ring on the cone section to, and covering, the adjustment rings just below the casting. Next, apply shrink wrap or visquine to the outside of each joint to further seal sanitary manhole.

- C. Manhole Sealant: Provide manhole manufacturer's written confirmation that all reinforced pre-cast concrete sanitary manhole sections contain the inorganic

copolymer waterproofing admixture IPANEX or microsilica Force 10,000 D, in compliance with manufacturer's application instructions.

- D. Resilient Connectors: Provide stainless steel elements of the connector that are totally non-magnetic Series 305 stainless steel. Use a stainless steel clamp that is capable of sustaining applied torque in excess of eighty (80) inch-pounds.
- E. Manhole Tops: Use eccentric cone tops for manholes six feet or more in depth. Use flattops if indicated on the drawings or when manhole is less than six feet deep.
- F. Adjusting Rings: Provide adjusting rings of a minimum nominal thickness of not less than two (2) inches.
- G. Manhole Frames and Covers: Provide gasket seal cover, heavy duty type, with the City of West Lafayette Logo and the words "Wastewater Utility" cast in each manhole cover.
- H. Manhole Steps: Provide polypropylene step with a reinforced 3/8 of an inch minimum diameter reinforcing steel, grade 60. Do not use cast iron steps.

2.4 SOURCE QUALITY CONTROL

- A. Accept that the quality of all materials, the process of manufacture, and the finished precast manhole or structure is subject to inspection and approval by the ENGINEER. The OWNER or ENGINEER may make such inspection at the place of manufacture, on the work after delivery or at both places. The OWNER or ENGINEER may reject any precast manhole or structure at any time on account of failure to meet any of the specifications' requirements even though sample manhole sections may have been accepted as satisfactory at the place of manufacture.
 - 1. The OWNER reserves the right to core manholes either at the job site or point of delivery to validate strength of concrete and placement of steel. If cores fail to demonstrate the required strength or indicate incorrect placement of reinforcing steel, reject all sections not previously tested until sufficient additional cores are tested, at no increase in Contract Amount, to substantiate conformance to these requirements.
- B. Prior to being installed, each precast manhole or structure shall be carefully inspected. Reject those not meeting the specifications and replace at the Contractor's expense.
- C. Acceptance: Base acceptance of precast manhole or structure on passing a proof-of-design test in accordance with ASTM C 478.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Lift Holes: Provide lift holes that are formed, tapered, or drilled. Repair lift holes using a conical shaped pre-cast plug, properly sealed in place using non-shrink cement grout or an expanding Portland Cement mixture such as Octocrete.
- B. Manhole Base Section: Provide smooth trough with semicircular bottom that extends upward to the height of the pipe crown. Provide manhole bench that is smooth and slopes toward the trough at one inch per foot.
- C. Connections to Riser Section: Manufacture riser sections with openings properly located for making connections to sewers. Provide 6 inches minimum distance between a joint in a manhole section and the nearest edge of an opening for a connecting sewer. Make the diameter of such openings to be not more than 4 inches larger than the outside diameter of the pipe to be connected.
- D. Resilient Connectors: To connect a sanitary sewer to a new manhole, core drill and provide a flexible boot. After assembly, grout all pipe connections inside manhole in accordance with manufacturer's recommendations.
- E. Manhole Tops: Set cones or flattops so that no more than 12 inches of reinforced concrete rings are required to adjust the top of the manhole casting to grade.
- F. Adjusting Rings and External Chimney Seal: Provide a soil tight seal between the precast sanitary manhole and adjusting ring, and each adjoining adjusting ring, and between the adjusting ring and casting by the use of two (2) rows of 1/2 inch extrudable preformed gasket material or trowelable grade butyl rubber or an approved equal. After butyl rubber is applied to exterior of adjustment rings, install an exterior chimney seal as specified in Section 02509, Paragraph 2.1 A.5.
- G. Manhole Frames: Set manhole frame on 1/2 inch extrudable preformed gasket material or trowelable grade butyl rubber or an approved equal. In paved areas, match top of casting with finished grade; in unpaved/grassy areas, install casting so that the top extends at least twelve inches above finished grade, and grade surface to provide positive surface drainage away from manhole.
- H. Manhole Steps: Locate steps to one side of the manhole granting access to the bench. Install steps with non-shrink mortar or epoxy grout.
- I. External Concrete Joint Collar: Install external joint collar at every manhole joint where 25 feet below the ground surface.

3.2 TESTING

- A. Conduct manhole tests in accordance with Section 02516.

END OF SECTION

SECTION 02516

LEAKAGE TESTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Testing for any signs of leakage in all pipelines and structures required to be watertight.
 - 1. Test gravity sewers by the Low-Pressure Air Test Method, as specified.
 - 2. Test gravity sewers by the Mandrel Deflection Test (all flexible sewer pipe materials), as specified.
 - 3. Closed Circuit Television Inspections of New Sanitary Sewers, as specified.
 - 4. Test sanitary sewer manholes by Vacuum Test, as specified.
 - 5. Test chimney seals, as specified.
- B. Operation of Existing Facilities: Conduct all tests in a manner to minimize as much as possible any interference with the day-to-day operations of existing facilities or other contractors working on the site.
- C. Disposal of Pressure/Leakage Test Water: Dispose of pressure/leakage test water to a sanitary sewer only after receiving the approval of the local sewer authority or to another location in accordance with state and federal laws and regulations.

1.2 PERFORMANCE REQUIREMENTS

- A. Written Notification of Testing: Provide written notice when the work is ready for testing, and make the tests as soon thereafter as possible. The CONTRACTOR must receive approval of the ENGINEER on which test will be conducted on the new sewer system or any portion thereof.
 - 1. Provide personnel for reading meters, gauges, or other measuring devices.
 - 2. Furnish all other labor and required testing equipment.

1.3 REFERENCES

- A. Codes and standards referred to in this Section are:

1. ASTM C 1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test
2. ASTM F 1417 - Standard Test Method for Installation Acceptance of Gravity Sewer Lines Using Low-Pressure Air

1.4 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Testing Report: Prior to placing the sewer system in service submit for review and approval a detailed bound report summarizing the leakage test data, describing the test procedure and showing the calculations on which the leakage test data is based.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 LOW-PRESSURE AIR TEST – GRAVITY SEWERS

- A. Testing Procedure: Test gravity sewers using low-pressure air in accordance with ASTM F 1417.
 1. Isolate the section of sewer under test using pneumatic plugs that have a sealing length greater than the diameter of the pipe and are capable of resisting test pressure without external bracing or blocking. It is advisable to plug the upstream end of the line first to prevent any upstream water from collecting in the test line.
 2. Introduce low pressure air slowly into the sealed line until the internal air pressure reaches the “starting air pressure” of 4.0 psig greater than the average back pressure of any groundwater above the pipe, but not greater than 6.0 psig.
 3. After the starting air pressure is reached, throttle the air supply to maintain that internal pressure for at least 2 minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall.
 4. When temperatures have been equalized and the starting pressure stabilized, disconnect the air supply and allow pressure to drop. Observe the

continuous monitoring pressure gauge while the pressure is decreased to no more than 0.5 psig from the starting air pressure. The time in minutes required for the pressure to drop 0.5 psig shall not be less than as calculated using the following formula:

$$T = \frac{0.085 \times (D) \times (K)}{60 \times Q \times 2}$$

Where:

T = Shortest time, in minutes, allowed for the air pressure to drop 0.5 psig

K = $0.000419 \times (D) \times (L)$, but NOT less than 1.0

Q = Leak rate, 0.0015 cubic feet per minute per square feet of internal surface

D = Inside pipe diameter, in inches

L = Length of pipe being tested, in feet

3.2 MANDREL DEFLECTION TEST

- A. Testing: A five percent (5%) Mandrel Deflection Test shall be performed on all flexible gravity sewer pipe (PVC, HDPE, etc.). These pipes shall be mandrel tested with a rigid device sized to pass five percent (5%) or less deflection (or deformation) of the base inside diameter of the pipe. The mandrel test shall be conducted no earlier than thirty (30) days after reaching final trench backfill.
1. Test methods and equipment shall be subject to the ENGINEER'S approval. Each pipe material/type required to be Mandrel tested shall be tested with a mandrel approved by the pipe manufacturer.
 2. Conduct test in presence of the ENGINEER or his representative, and the test results must be reviewed and certified by the ENGINEER or his representative prior to final acceptance of the sewer.
 3. Any pipe section found to have failed by deflection within the warranty period will be replaced by the CONTRACTOR, all at no addition to the Contract price.

3.3 TELEVISION INSPECTION – GRAVITY SEWERS

- A. Internal Pipe Inspection: Before final acceptance, inspect all new gravity sewers by closed-circuit television inspection. Conduct CCTV operations in accordance with Section 02651.

3.4 MANHOLE TESTING

- A. Testing: Demonstrate the integrity of installed materials and construction procedures by conducting a Vacuum Test in accordance with ASTM C 1244. Testing prior to backfilling is highly recommended to facilitate corrective measures in case of test failure. Proceed with the manhole test as follows:
1. Plug all pipe openings, taking care to securely brace the plugs.
 2. With the vacuum tester set in place:
 - a. Inflate the compression band to 40 psi to affect a seal between the vacuum tester base and the manhole frame.
 - b. Connect vacuum pump to the outlet port with the valve open.
 - c. Draw a vacuum to ten inches of mercury (10" Hg) and close the valve.
 3. The test shall pass if the vacuum remains at 10" Hg or drops to 9" Hg in a time greater than one minute.
- B. Repair: If the manhole shows leakage or signs thereof, repair the manhole to the satisfaction of the ENGINEER and retest.

3.5 CHIMNEY SEAL TESTING

- A. Testing Procedure: Test all chimney seals as follows:
1. Conduct leakage test after the manhole has passed the vacuum test.
 2. Install the chimney seal and only the bottom band per manufacturer's recommendation. Fully tighten the bottom band. Do not install the top band.
 3. Pull the top of the chimney seal away from the manhole frame. Pour one (1) gallon of water between the chimney seal and the manhole.
 4. Observe the bottom seal for a minimum of one (1) minute for leakage. Drain the water by folding the top of the chimney seal down.
 5. If there is no leakage, install the top band per manufacturer's recommendation.
- B. Chimney Seal Failure:

1. If the bottom band or the chimney seal has any leakage, then remove, replace or reposition the bottom band or chimney seal and retest.

3.6 REPAIR OF LEAKING PIPES

A. Procedures: Repair leaks as follows:

1. Replace broken pipe or joint assemblies found to leak.
2. When leakage occurs in excess of the specified amount, locate and repair defective valves, pipe, cleanouts or joints.
3. If the excess leakage is determined to be caused by defective materials furnished, improper workmanship, or damage to the materials, make the necessary repairs or replacements at no addition to the Contract Price.
4. If defective portions cannot be located, remove and reconstruct as much of the original work as necessary to obtain piping that meets the leakage requirements specified herein and retest, all at no addition to the Contract Price.

END OF SECTION

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SECTION 02651
SEWER TELEVISION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Closed-circuit television (CCTV) inspection of new underground sewer pipelines.
- B. Related Work Specified in Other Sections Include:
 - 1. Section 02760 - Sewer Cleaning

1.2 SYSTEM DESCRIPTION

- A. Testing: CCTV inspection of new sanitary sewers shall be conducted no earlier than thirty (30) days after reaching final trench backfill or not before passing a mandrel test (for flexible pipes).
- B. Provide all necessary CCTV equipment:
 - 1. Provide television inspection equipment with working pan and tilt capabilities, and an accurate footage counter manufactured specifically for sewer inspections.
 - 2. Provide camera able to transmit a continuous image to the television monitor as it is being pulled through the sewer segment.
 - 3. Supply camera with a minimum of 1,000 feet of coaxial cable.
 - 4. Equip camera with an articulating lens to provide clear views of laterals and other items of importance.
 - 5. The camera shall be equipped with remote control devices to adjust the light intensity. The lighting system shall be adequate for quality pictures. A reflection in front of the camera may be required to enhance lighting.

1.3 SUBMITTALS

- A. Submit sewer televising DVD-ROMs including inspection reports to the ENGINEER for review and approval.

1. Provide DVD-ROMs of a quality sufficient to evaluate the condition of the sewer, locate the service connections, and verify cleaning. If quality is not sufficient, re-inspect the pipeline segment and provide inspection reports and DVD-ROMs at no addition to the Contract Price. Camera distortions, inadequate lighting, dirty lens, or blurred/hazy picture will be cause for rejection of DVD-ROMs and rejection of the associated line segment.
2. Maintain a master copy of all inspection reports and DVD-ROMs submitted until final acceptance of contract.
3. DVD-ROM Label: One label shall be placed on the non-recordable side of the DVD-ROM. Permanently label each DVD-ROM with the following:
 - a. OWNER's Name
 - b. Project Name
 - c. Contractor's Name
 - d. Inspection Type: Pre-Installation, Post-Installation
 - e. Date Televised
 - f. Date Submitted
4. DVD-ROM Case Label: Two labels are required. One label shall be placed on the spine of the case and the other on the face of the case. Permanently label each DVD-ROM case with the following information:
 - a. Spine of DVD-ROM case:
 - (1) Project Name
 - b. Face of DVD-ROM case:
 - (1) OWNER's Name
 - (2) Project Name
 - (3) Contractor's Name
 - (4) Date Televised
 - (5) Date Submitted

1.4 QUALITY ASSURANCE

A. Experience Requirements:

1. Provide personnel operating camera equipment with a minimum of three (3) years experience in sewer televising and certified by the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP).
2. Conduct all television inspections in compliance with NASSCO's PACP condition assessment defect coding guidelines. Prepare inspection reports

on an individual sewer segment basis that identify all service laterals and pipeline defects.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 PREPARATION

- A. Cleaning: Clean pipelines prior to CCTV inspections. Provide cleaning in accordance with Section 02760 - Sewer Cleaning.

3.2 CCTV PIPELINE INSPECTION

- A. Be aware that this Contract requires work in active sewers. Follow all federal, state, and local requirements for safety in confined spaces.
- B. Select the appropriate equipment, tools, and methods for securing safe passage of the camera.
- C. Inspection: After cleaning the sewer segments, internally inspect sewer segments to verify it was constructed in accordance with Contract Documents.
 - 1. Record these inspections on DVD and include a verbal narrative or text display noting:
 - a. Date and location (street address)
 - b. Sewer segment number: "from" manhole number and "to" manhole number.
 - c. Locations of observations, structural defects, joint deterioration, leakage or evidence thereof, material transitions, and other abnormalities with respect to the sewer condition. Indicate the distance from the centerline of the upstream manhole for each item noted.
 - d. A written inspection log listing recorded observations for each sewer main.
 - 2. Carefully inspect the interior of the sewer main to determine the location and extent of any installation defects. Note the location of any conditions, which may prevent proper installation of cured-in-place pipe into the existing pipelines, so that these conditions can be considered and, if

necessary, corrected prior to actual rehabilitation. Stop the camera at all defects and service connections and use the pan and tilt features to obtain a clear picture.

3. Maximum acceptable speed of camera through sewer is thirty feet per minute (30 fpm).
4. Do not split a sewer segment between two DVDs.
5. If any obstruction in the sewer segment, such as a protruding building lateral, prohibits the passage of the television camera, attempt to inspect the remainder of the sewer segment by making a reverse setup at the next downstream manhole. Reverse set-ups are at no addition to the Contract Price.
6. Should the CONTRACTOR's televising equipment become lodged in any sewer line, remove the equipment, at no additional cost to the Contract Price. This includes, if necessary, excavation and repair of the sewer, underground utility repairs, backfilling and surface restoration. Re-televising any line segment in which his equipment became lodged after said equipment has been removed to demonstrate to the OWNER that no damage exists as a result of the televising operations.
7. Correct all defects discovered during the television inspection before the Work will be considered for substantial completion and at no addition to the Contract Price.
8. Allow sufficient time for the ENGINEER to review the videos prior to the substantial completion milestone.

3.3 ACCEPTANCE

- A. Present on DVD a continuous image of not less than ninety-five percent (95%) of the internal pipe surface at all times. The DVD to be accompanied by a complete written inspection report.

3.4 DELIVERABLE

- A. Submit two (2) DVDs and two (2) printed copies of the final inspection reports.

END OF SECTION

SECTION 02760
SEWER CLEANING

PART 1 GENERAL

1.1 DESCRIPTION

A. Scope:

1. Furnish all material, labor and equipment required to clean new sanitary sewer pipelines as specified herein complete with all appurtenances and accessories, as required. Clean pipes to allow for a closed-circuit television (CCTV) camera to discern 95% of the internal pipe surface, to discern all pipeline defects and to facilitate sewer rehabilitation.
2. The cleaning work required may include, but is not limited to, the following:
 - a. Field locate all manholes along the sewer reaches to be cleaned.
 - b. Maintain and protect vehicular and pedestrian traffic, and meet all requirements of the OWNER and all other governmental agencies having jurisdiction.
 - c. Clean existing sanitary sewers, as specified, to permit proper closed-circuit television (CCTV) inspection.
 - d. Dispose of waste and sediment as specified herein.
 - e. Remove roots as specified herein.
 - f. Clean-up as the work progresses and after the completion of all work activities.
 - g. All other work required for the complete and satisfactory cleaning of the pipeline.
 - h. Remove protruding service connections.
 - i. Control flow in sewers as needed to permit the work to be accomplished, by use of plugs, flow restrictors, pumped bypasses or other reviewed means.

B. Related Work Specified in Other Sections Includes:

1. Section 02651 - Sewer Televising

1.2 REQUIREMENTS

- A. Be aware that this Contract requires work in active sewer manholes and shall follow all Federal, State and local requirements for safety when in confined spaces.
- B. Provide experienced personnel in the cleaning of sanitary sewers. Furnish documentation of experience to the OWNER upon request.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 CLEANING

- A. Take sole responsibility for safety during the performance of all Work.
- B. Clean the sewer with hydraulically propelled, high velocity jet or mechanically powered equipment. Select equipment based on the conditions of the sewer line at the time work commences. The equipment and methods selected shall be satisfactory to OWNER and shall be capable of removing dirt, grease, rocks, sand, roots, and other material and obstructions from the sewer line.
- C. Determine the extent of the cleaning during the pre-bid jobsite examination.
- D. During sewer cleaning operations, take precaution in the use of cleaning equipment to prevent damage to the existing pipe. There may be some conditions such as broken pipe that prevent cleaning from being accomplished or where damage would result if cleaning were attempted or continued. Should such conditions be encountered, immediately notify ENGINEER. If, in the course of cleaning operations, damage does result from preexisting and unforeseen conditions such as broken pipe, CONTRACTOR shall not be held responsible. Notify ENGINEER of any conditions that warrant termination of cleaning activities.
- E. When using hydraulically propelled devices, take precautions to ensure that the water pressure created does not cause damage or flooding to public or private property.
- F. Take precautions during sewer cleaning operations to prevent damage to homes with laterals on the sewer main being cleaned. Immediately notify OWNER of

any damage to homes or other private property due to sewer cleaning operations. Be responsible for repair of any damage due to sewer cleaning operations at no addition to the Contract Price.

- G. Debris disposal is the responsibility of the CONTRACTOR. Remove all material resulting from the cleaning operations from the site at least once each working day.
- H. Ensure no solids are passed downstream to the next pipe section during the cleaning operation. Construct a suitable sand trap, weir, dam, or other approved method in the downstream manhole in such a manner that all solids and debris are trapped and removed.
- I. Obtain permission for access where access to manholes in easements and rights-of-way is required.
- J. Provide and maintain traffic control devices throughout prosecution of the Work as shown and specified.
- K. Clean upstream sewer reaches before the downstream reaches are cleaned.

3.2 ROOT REMOVAL

- A. Remove roots in the pipe sections where root intrusion is a problem. Assure almost complete removal of roots from the joints. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners.
- B. Chemical root treatment may be used at the option of CONTRACTOR, however, the use of such treatment must allow for a root removal rate that allows the CONTRACTOR to complete all Work within the required time for completion.

3.3 ACCEPTANCE

- A. Acceptance of sewer line cleaning will be based on inspection at manholes and viewing of video tape completed following cleaning. A line will be considered clean if the depth of debris remaining after cleaning is less than or equal to the following:

<u>Pipe Size</u>	<u>Maximum Debris Remaining</u>
18 inches and smaller	Negligible

END OF SECTION

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SECTION 02900

LANDSCAPING WORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Soil, soil preparation, excavation, planting, seeding, sodding, fertilizing and maintenance.
- B. Related Work Specified in Other Sections Includes:
 - 1. Section 02316 – Earth Excavation
 - 2. Section 02317 – Backfilling

1.2 SUBMITTALS

- A. General: Provide all submittals as specified in Division 1.

1.3 DELIVERY, STORAGE AND HANDLING

- A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows.
- B. Top Soil: Deliver top soil in a dry state without enough moisture to allow it to be packed or squeezed into a ball.
- C. Balled and Bare Root Plants: Immediately after delivery, set all balled plants on the ground with the balls well protected with soil. Water and properly maintain all plants until planting. Plant or heel in bare rooted plants which cannot be planted immediately upon delivery. No materials heeled in for more than a week may be used. Before the roots are covered, open bundler and separate the plants.
- D. Grass Seed: Deliver grass seed in standard size bags of the vendor, showing weight, analysis and name of vendor. Store the seed so as not to impair its effectiveness.
- E. Sod: Deliver sod to the site in fresh condition and within two days of the time it has been dug.
- F. Fertilizer: Deliver fertilizer mixed as specified, in standard size bags, showing weight, analysis and the name of the manufacturer. Store the fertilizer in a weatherproof storage place in a manner that will keep it dry without impairing its effectiveness.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Seeding: Sow grass seed between August 15th and October 15th unless sowing between March 15th and June 1st is permitted. Sow seed when the wind velocity is below 5 mph. Do not seed earlier or later than these times without written approval.
- B. Sodding: Place sod between August 15th and October 15th or between March 15th and June 1st, or as otherwise approved.
- B. Planting: Unless otherwise directed, plant deciduous material from March 1st to June 1st and from September 15th to November 15th. Plant evergreen material from April 1st to June 1st and from September 15th to November 1st.

1.5 WARRANTY

- A. General: Apply the one-year warranty to all seeded and planted areas. Have the warranty period commence after the final acceptance of all landscaping work exclusive of all replacement plant materials.
- B. Plant Material: Warranty plant materials for a period of one year.
- C. Seeded Areas: Warranty seeded areas to the time of establishment of an acceptable uniform stand of grass.
- D. Sod: Warranty sod to 30 days following the first cutting.

1.6 MAINTENANCE

- A. General: Maintain all seeded and planted areas during the warranty period.
- B. Grass Areas: Maintain all seeded and sodded areas by watering, weeding and fertilizing as required to establish a uniform stand of weed-free grass. Reseed or resod areas failing to develop a uniform stand. Apply a minimum of 2 applications of fertilizer for the grass as necessary to achieve weed-free turf. Bear the cost of the water.
- C. Trees, Shrubs and Ground Covers: Cultivate trees, shrubs and ground covers and weed and water when necessary, but not less than twice a month, to prevent plant material from dying. Spray as required to keep trees and shrubs free of insects and disease. Restore or replace damaged stakes and guy supports and tree wrappings. Replace any plant material which is found to be dead or dying during the warranty period to original specifications upon request. Include the full cost of replacing dead or dying plant material in the Contract Amount. No separate payment will be made for replacements. Maintain plant material to be alive, in good growing condition and free of weeds.

- D. Replacement: Replace plant material and resod or reseed grass areas only during the specified planting seasons and warranty the replacement material for the same period of time as the original material.

PART 2 PRODUCTS

2.1 SOIL

- A. Topsoil: Use existing site stripped topsoil to backfill final 8 inches below finished grade. If additional topsoil from off-site is required, provide a natural friable top soil of the region, rich in organic matter, without any material toxic to plant growth and of uniform quality, free of large roots, sticks, hard clay, weeds, brush, stones over 1-inch in maximum dimension or other litter or waste products. Provide topsoil containing no decomposed stone, salts or alkali, and not less than 15 parts per million of available nitrates, 3 parts per million of available phosphorus, 15 parts per million of potash, and having a pH of not less than 6.0 nor more than 7.2 at a depth of 8 inches below the surface of the field from which it is removed. Provide topsoil with a mechanical analysis as follows:

<u>Sieve</u>	<u>Percentage Passing</u>
1 inch	100
1/4 inch	97-100
No. 100	40-60

- B. Planting Soil: Prepare planting soil by mixing 10 parts of topsoil with fertilizer and 1 part of peat moss.

2.2 GRASS SEED AND SOD

- A. Grass Seed: Provide a fresh, clean, new crop of grass seed composed of 20 percent Creeping Red Fescue, 30 percent Nightsky Perennial Rye Grass, 30 percent CaddieShack II Perennial Rye Grass, and 20 percent Common Kentucky Blue Grass. Provide seed components free of noxious weed seeds and having not less than the following purity and germination:

<u>Component</u>	<u>Percent Purity</u>	<u>Percent Germination</u>
Creeping Red Fescue	95	85
CaddieShack II Perennial Rye Grass	95	90
Nightsky Perennial Rye Grass	95	90
Common Kentucky Blue Grass	95	85

Tag each sack in accordance with the agricultural seed laws of the United States and the State of Indiana. Show on each tag the producer's guarantee as to the year grown, the percentage of purity, the percentage of germination and the tests by which the percentages were determined. Provide seed for this project having a test date within 6 months of the date of sowing.

- B. Sod: Provide nursery-grown Improved Kentucky Blue Grass sod, free of weeds, a minimum of 1-inch thick of dense growth and cut with sharp edges in 18-inch widths and not less than 3 feet long. Sod which has been grown on peat or which has been dug more than two days previous to delivery or which has been allowed to have the roots dry out on which the grass has turned brown will not be accepted.

2.4 PLANT MATERIALS

- A. General: Provide plant materials that are true to species or variety, sound, healthy, vigorous acclimated plants free from defects, disfiguring knots, sun-scaled injuries, abrasions of the bark, plant diseases and insect eggs, borers and all other forms of infestations. Provide material that has normal, well-developed branch systems and vigorous root systems and that is freshly dug, nursery-grown stock grown under the same climatic conditions as the Project location. Provide material grown under climatic conditions similar to those in the locality of the project for at least two (2) years and transplanted or root pruned at least in the last three (3) years.
- B. Plant Size: Dimension a plant as it stands in its natural position. Measure trees under 4 inches in caliper at a point 6 inches above the ground and trees more than 4 inches in caliper at a point 12 inches above ground. Provide the stock of a fair average of the minimum and maximum sizes specified. Do not cut back large shrubs to sizes specified.
- C. Balled, Burlapped and Platformed Plants: Dig balled and burlapped, as well as balled and platformed, plants with sufficient roots and a solid ball of earth securely held in place by burlap and stout natural fiber rope. Manufactured balls are not acceptable. Provide balled and platformed plants with sturdy platforms of a size equal to the diameter of the horizontal midsection of the ball of earth.
- D. Trees: Replacement trees can be selected from the following list of acceptable species: Autumn Blaze Maple, Cumulus Allegheny Serviceberry, October Glory Red

Maple, Thornless Cockspur Hawthorn, Winter King Hawthorn, Skyline Honeylocust, Cherokee Sweetgum, Red Oak, Pin Oak, Chinkapin Oak, Shagbark Hickory, Tulip Poplar, or Black Gum. The trees are to be single stem, 1.5 inch or greater in caliper.

2.5 COMMERCIAL FERTILIZER

- A. Provide all commercial mixture fertilizer uniform in composition, free flowing, conforming to state and federal laws and suitable for application with equipment designed for that purpose. Provide fertilizer with organic, inorganic or combined elements with the minimum following composition by weight:

1.	Nitrogen	12 percent
2.	Phosphorus	12 percent
3.	Potassium	12 percent

- B. Application: Apply fertilizer at a rate of 6 pounds per 1,000 square feet at planting.

2.6 ACCESSORIES

- A. Provide Tree Wrap: Provide new, clean, plain, 8-ounce weight burlap material 6 inches wide for wrapping tree trunks.
- B. Mulch: Provide organic mulch, Type Grade 'A', Shredded hardwood or bark mulch suitable as a top dressing for trees and shrubs.

PART 3 EXECUTION

3.1 GRADES

- A. Grass Areas: Grade lawns to meet walks, curbs and adjoining surfaces after uniform settlement of surfaces. Correct water pockets or ridges which appear after surface settlement takes place on or before the end of the guarantee period.

3.2 EXCAVATION FOR PLANTING

- A. General: Obtain approval for all plant locations before excavation. Remove from the site all material that is surplus and unsuitable for backfill.
- B. Installation: Have trees and shrubs planted by a qualified landscape installer whose work has resulted in successful establishment of exterior plants.
- C. Grass Areas: Excavate for ground cover and grass areas to the required depths for grass to receive 2 inches of off-site topsoil.
- D. Plant Pits: Excavate plant pits with vertical sides and a circular outline.

1. Dig tree and evergreen pits about twice the diameter of the ball, and deep enough to permit an 8-inch layer of compacted planting soil beneath the ball.
 2. Dig shrub pits a minimum of twice the diameter of the ball and deep enough to allow 6 inches of compacted planting soil beneath the ball.
- E. Drain: Install french drains for all trees, ornamental trees, and evergreens planted on berms and other locations where the grade permits, from bottom of planting pit to the finished grade with a trench 9 inches wide, filled with a 6-inch thick layer of 3/4-inch washed gravel. Cover the gravel layer with a filter mat before backfilling the trench with soil.

3.3 SOIL CONDITIONING

- A. Disking: Before the application of seeding, disk the area to be seeded with grass seed to a depth of 8 inches. Continue the disking until the subsoil surface is sufficiently broken to provide a good bond between subsoil and topsoil. Spread the required depth of off-site topsoil over the disked area to a uniform depth and density.

3.4 SEEDING AND SODDING

- A. Seeding: Sow seed at the rate recommended by the seed producer, but not less than 10 pounds per 1,000 square feet. Evenly rake the surface after seeding with a fine-tooth rake. Mulch all newly seeded areas and cover with a minimum of 1/4-inch of straw or hay, approximately at the rate of 1.5 bales per 1,000 square feet, then thoroughly wet.
- B. Sodding: Lay sod in such a manner that the surface is smooth and even all edges abut one another tightly. Water and roll sod so that a bond is produced between the prepared topsoil and the sod. On slopes greater than 3 to 1, stake installed sod with approved wooden sod stakes at a minimum rate of three stakes per square yard of sod.

3.5 PLANTING

- A. Layout: Outline locations for trees, shrubs, evergreens and bed and stake for approval. Obtain location approval prior to commencing planting operations.
- B. Setting Plants: Remove all soil from top of root ball to root flare. Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Set plants plumb and straight with the crown at finished grade. Compact planting soil around the base of the ball, and fill the void 3/4 of the way up from the bottom. Water each plant immediately. After the water has completely drained, backfill the plant pits to finished grade. Properly spread out roots of bare root plants and carefully work topsoil among them. Cut off any broken or frayed roots with a clean cut. Form a shallow basin, the size of the ball with a ridge of soil to

facilitate watering. After that operation is completed, apply a second watering immediately. Finish all planting pits and beds within a period of three (3) days following installation. Construct tree saucers, cultivate and outline planting pits with a neat edge, when necessary.

- C. **Mulching:** Immediately after planting operations are completed, cover all tree and shrub pits with mulch to a minimum depth of 3 inches extending 6 feet in diameter around the tree. Create 4 inch high earth saucer beyond edge of root ball, per City Standard Detail. Limit mulch for trees to saucer diameter. Do not place mulch within 3 inches of trunks.
- E. **Pruning:** Prune each tree and evergreen with clean, sharp tools in accordance with standard horticultural practice to preserve the natural character of the plant. Remove suckers and all dead, broken or badly bruised branches.
- F. **Wrapping:** Wrap the tree trunks of all trees with trunk-wrap tape. Start at base of trunk and spiral cover trunk to height of first branches. Overlap wrap, exposing half the width, and securely attach without causing girdling. Inspect tree trunks for injury, improper pruning, and insect infestation; take corrective measures before wrapping.
- G. **Staking:** Stake trees as necessary to be plumb and straight and to prevent wind tip-out (see City Standards). Remove stakes and/or guy wires after a period of one year after time of planting.
- H. **Watering:** During planting, thoroughly saturate the soil around each plant with water and as many times later as seasonal conditions require until the end of the guarantee period. Bear the cost of the water.

END OF SECTION

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